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ABSTRACT

This report addresses the scope of Arizona's dropout problem and strategies for changing the situation. An introduction examines the magnitude of the problem, who is dropping out and why, costs of dropping out, what works in combating high dropout rates, what Arizona citizens and leaders can do, and what steps should be taken to reduce the dropout problem. The rest of the report describes research results. For every student Arizona schools fail to retain through graduation, the state loses money in lost earning capacity and incarceration expenses. For every $1 spent on getting students through graduation, Arizona saves $66 in state services and lost revenues. Only 3 of every 10 students entering Arizona as freshmen in the 1996-97 school year were not still enrolled in their senior year in the 1999-2000 school year. Minority high school students drop out at disproportionate rates. Some state policies for identifying and counting dropouts and high school graduates are in place. Not all Arizona schools submit data needed to calculate graduation and dropout rates. There is currently no established graduation rate goal for the state or individual districts, no major statewide initiative for addressing the dropout issue, inadequate numbers of dropout prevention programs that have adequately evaluated and documented their effectiveness over time, and no single all-inclusive program for addressing the dropout issue. (Contains 78 references.) (SM)

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Dropping Out of Arizona's Schools: The Scope, the Costs, and Successful Strategies to Address the Crisis.

Arizona Minority Education Policy Analysis Center

Research Conducted by:
Intercultural Development Research Association

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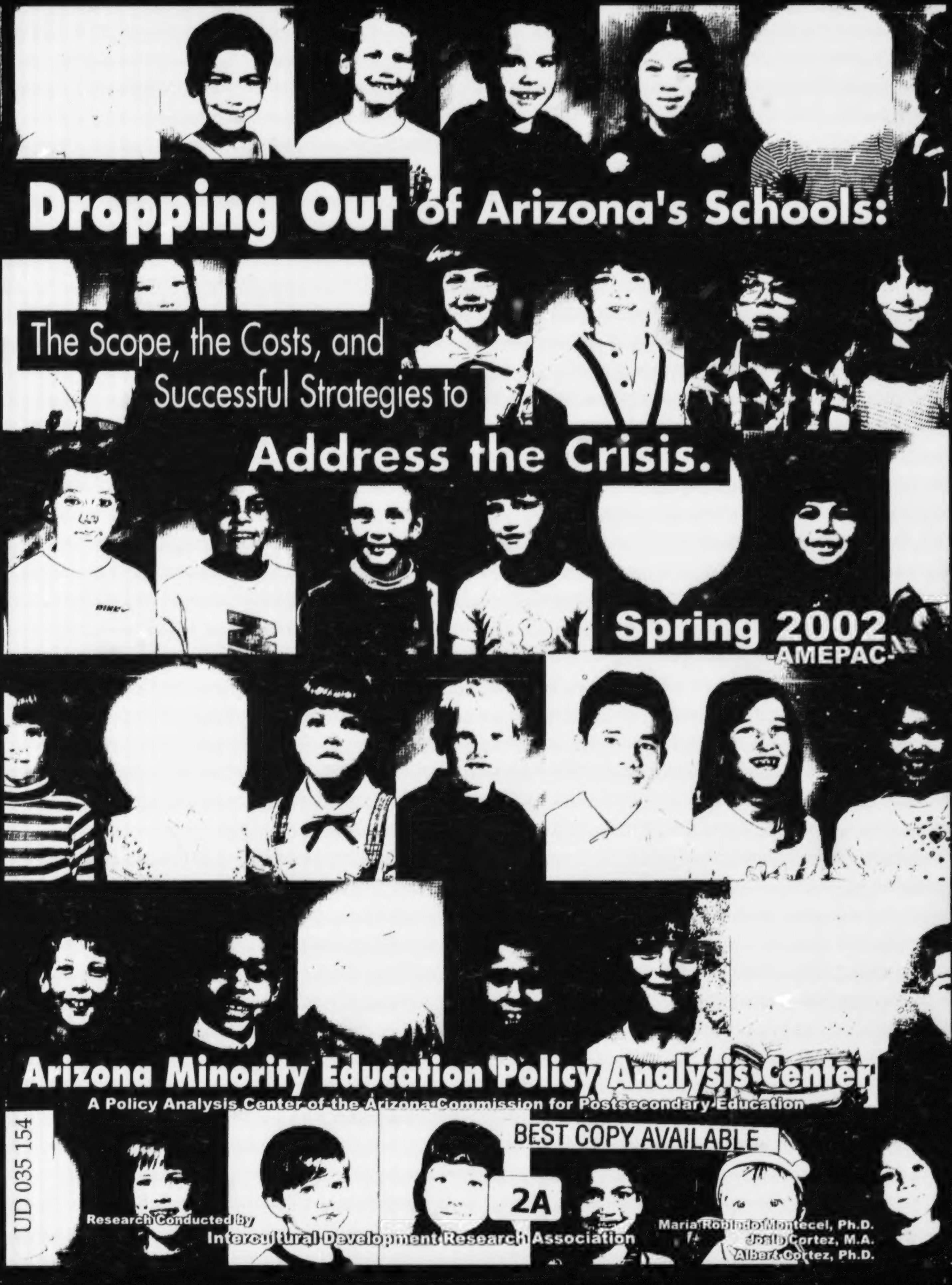

Dropping Out of Arizona's Schools:

The Scope, the Costs, and Successful Strategies to Address the Crisis.

Spring 2002
-AMEPAC-

Arizona Minority Education Policy Analysis Center
A Policy Analysis Center of the Arizona Commission for Postsecondary Education

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AMEPAC Mission:
To stimulate, through studies, statewide discussion, and debate, constructive improvement of Arizona minority students' early awareness, access, and achievement throughout all sectors of education.

AMEPAC is a policy analysis center of the
Arizona Commission for Postsecondary Education

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Stemming the Tide of Dropouts:

An Action Agenda for Arizona

by

The Arizona Minority Education Policy Analysis Center (AMEPAC)

A policy analysis center of the
Arizona Commission for Postsecondary Education

Arizona Minority Education Policy Analysis Center
May 2002

Stemming the Tide of Dropouts:

An Action Agenda for Arizona

Last January, two children strayed from their family during a hike in the woods of northern Arizona. Search and rescue teams from four county sheriff's offices and personnel from the U. S. Forest Service engaged in an intense effort to locate these children and return them safely. Professional trackers, scent dogs, all-terrain vehicles, and helicopters combined efforts in a spare-no-expense mission. The plight of the lost children and their frantic parents was broadcast throughout the state. There were hourly updates on the progress of the 170 search and rescue workers. The children were found and brought back safely to a collective sigh of relief.

Our concern for these lost children was understandable and appropriate. Our response involved attention, personnel, and investment of resources. Children's lives were clearly precious.

In the past year we lost more than 10,000 children due to the relentless, silent tide of dropouts in Arizona - and few of us seem to know about it - and even fewer seem to care. Their loss isn't broadcast on the nightly news; reporters aren't camping out on the school steps; and there are few search and rescue squads ready to save them. The children who quietly wander away from our schools probably won't die in the cold, but their life chances are dramatically diminished and their futures significantly limited. They are missing! They are lost! What are we doing about it?

The loss of our children from schools is a crisis - and we need to respond to it with the kind of attention, resources, passion, and compassion we devoted to the physical rescue of those two children lost in a cold winter forest.

Background

Most data in this document was made available through the Arizona Department of Education (ADE) and presented in an AMEPAC commissioned research paper, "Dropping Out of Arizona's Schools: The Scope, the Costs, and Successful Strategies to Address the Crisis" written by the Intercultural Development Research Association (IDRA). AMEPAC commissioned this study in an attempt to determine the scope of the Arizona dropout problem and strategies for changing this disastrous situation. IDRA was selected based on their record of expertise in this field.

How Big Is the Dropout Problem in Arizona?

A review of data related to the quantity and the types of students who leave before completing high school provides a revealing picture. The many Arizona children lost from our educational system is stunning - and deeply disturbing.

How Many Children Are We Losing?

Annual Rates

Each year during the six school years from 1994-95 to 1999-2000, Arizona's schools lost an average of:

- 32,000 children (8.8% of all students in Grades 7-12)
- 4,000 children from Grades 7 and 8 (3.2% of the total)
- 28,000 children from high school (11.9%)

A total of almost 200,000 children dropped out of Arizona's schools during the last six school years of the 20th century. This is more than the entire population of any single rural county in Arizona.

Longitudinal Rates

The traditional method of calculating the annual number of students dropping out fails to reveal the full extent of our loss. In an article entitled "Graduation Statistics: *Caveat Emptor*" in the January 16, 2002 issue of Education Week, the author says, "Presenting dropout rates in annual terms is like reporting credit card interest rates in monthly terms; it just makes the number feel smaller."

Another approach is to track a cohort of students over a period of time. This can be done by identifying students who began first grade or those who began high school, then following them to the time of high school graduation for their class. Doing this type of "cohort analysis" or "longitudinal dropout rate" provides a more complete picture of what has happened to the children who enter our school system.

Doing an accurate cohort analysis requires a sophisticated enrollment tracking system. In process of developing such a system, the Arizona Department of Education (ADE) expects to have one operational by 2004. In the meantime, it is possible to provide an estimate of the longitudinal dropout rate in Arizona with the use of the approach originally developed by IDRA for application in Texas.

Using this approach, IDRA concluded that Arizona high schools experienced the following attrition rates:

- 32.8% for the class of 1998
- 32.8 % for the class of 1999
- 31.8% for the class of 2000

For the class of 2000 alone, this translates to a loss of 21,472 students between 9th grade and high school graduation (IDRA, 2002).

Almost one third of Arizona students who begin 9th grade drop out prior to completing their high school education.

Who Is Dropping Out?

Gender

Arizona's experience is similar to that of other states in that males drop out of school at higher rates than females. For example, the dropout rate among all students in Arizona high schools in 1999-2000 was:

- 12.6% for male students
- 9.6% for female students

Given available information, it was not possible to determine the longitudinal dropout rate for females and males over a four-year period.

Race/Ethnicity

Arizona again reflects the national trend, in that minority students drop out at higher rates than White students do. However, a substantial proportion of all dropouts are White and Hispanic. The students who dropped out of high school in the 1999-2000 school year can be used as an example.

Annual Dropout Rate and Number by Ethnicity[1]
1999-2000

	# Dropping Out	% Dropout Rate	% of All Dropouts
Asian	232	4.8%	1.0%
Black	1,446	13.0%	5.5%
Hispanic	10,969	15.4%	42.0%
Native American	2,919	16.8%	11.2%
White	10,531	8.1%	40.4%

Troubling as these annual dropout rates might be, they mask the extent of the problem for each group. A cohort analysis reveals that the longitudinal dropout rates are:

Longitudinal Dropout Rate by Ethnicity
1998-2000

	Class of 1998	Class of 1999	Class of 2000
Asian	9.6%	13.3%	14.1%
Black	34.9%	33.6%	32.6%
Hispanic	43.7%	44.0%	42.7%
Native American	45.3%	45.7%	48.3%
White	26.0%	25.6%	24.2%

The shocking fact is that approximately **one quarter of White students and one third of Black students** in Arizona are dropping out before completing high school. While wholly unacceptable, this statistic is almost overwhelmed by the alarming conclusion that virtually **one half of all Native American and Hispanic children in Arizona are not completing high school** (IDRA, 2002).

> ***One third of all our children are not completing high school. Almost half the students from some ethnic groups are lost from our schools prior to graduation.[1]***

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[1] Intercultural Development Research Association, 2002

The dropout rate in Arizona is not a "problem." The dropout rate in Arizona is a full-blown crisis! It demands action to stem this shameful tide of lost children.

Where Are They Dropping Out?

As would be expected in a state with one extremely large urban county, more than half (16,093) of the students who drop out live in Maricopa County. However, in 1999-2000, the dropout rate for Maricopa County (7.7%) was lower than the rate for the state as a whole. The lowest dropout rates were in Cochise County (6%) and Greenlee County (3.1%), while the highest rates were found in Mohave County (10.8%), Apache County (9.8%) and Pinal County (9.9%).

Why Do They Drop Out?

As with any complex social phenomenon, it is impossible to determine a single factor responsible for students dropping out of school. However, studies over the years have determined certain elements to be correlated with students dropping out. None will predict who will drop out, but these factors noted by IDRA in their study clearly relate to the likelihood of students doing so[2].

Factors related to socio-economic status in a community include:

- ☐ Family income
- ☐ Ethnicity
- ☐ Parents' level of education
- ☐ Migrant *(AMEPAC Addition)*

Factors related to the individual student include:

- ☐ Being over age in grade
- ☐ Being a former retainee
- ☐ Teen pregnancy or parenthood
- ☐ Excessive absenteeism
- ☐ Boredom and not being academically challenged
- ☐ Academic underachievement
- ☐ Teachers teaching out-of-discipline areas *(AMEPAC Addition)*

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[2] IDRA does not support the contention that student factors determine reasons students drop out. A lack of focus on institutional characteristics and need for systemic change may explain why decades of dropout prevention initiatives have met with relatively limited success.

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Factors related to school-based characteristics include:

- Expenditures per pupil
- Percentages of certified teachers
- Average years of teaching experience
- Opportunities for extra-curricular participation

Effective efforts to reduce the number of children lost from the school system must therefore involve a variety of approaches, ones that account for the range of factors influencing whether or not children remain in school.

> ***Given the importance of institutional characteristics associated with dropout rates, attention must be paid to issues of school funding and the quality of the schools themselves.***

What are the Costs of Dropping Out?

A student dropping out of school prior to high school graduation is an event having major, long-term impacts. That individual's opportunities in life and projected income will be drastically curtailed. Society will also pay a heavy price for this action.

What Earning Potential Is Lost?

Among the most obvious results for the individual is a loss of earning potential. IDRA has pointed out that, according to the National Center for Educational Statistics (NCES):

- Male high school graduates in 1998 earned an average of $7,800 more per year than those who did not graduate
- Female high school graduates earned an average of $4,700 more per year than those who did not graduate
- If the male student who dropped out of high school had instead continued on to complete a baccalaureate degree, he would be earning an average of $22,300 more per year.
- The female student would be earning an average of $20,100 more per year had she completed a baccalaureate degree.

Over a lifetime of work, this could translate to well over half a million dollars in lost income for each individual who drops out of high school.[3]

The long-term cost of dropouts was estimated through the application to Arizona of the IDRA Texas-based model. For example, the 21,472 students who dropped out prior to graduating high school in 2000 will collectively:

- ☐ Lose an estimated annual income of $159.23 million
- ☐ **Lose $13.61 billion in personal income in their lifetimes** if they work until they are 60 years old (IDRA, 2002)

What Is the Cost to Society?

The cost to society for a high dropout rate is both direct and indirect. The lower incomes earned by those who did not complete high school result inevitably in lower tax revenues. As a group, dropouts experience higher levels of both unemployment and incarceration, so a high dropout rate will likely result in elevated costs for unemployment and workers compensation payments as well as the increased costs for correctional facilities (IDRA, 2002).

Using the model developed by IDRA, it is estimated that $47.77 million will be lost annually in tax revenues because of the lower incomes. This translates to $4.08 billion in tax revenue lost to society over the working lifetimes of these dropouts. According to the IDRA formula, which includes federal income and social security tax; state income, property, sales, gasoline, alcohol, and tobacco tax; and any local taxes, if the higher costs for incarceration predicted for this group are factored in, **the dropouts from the class of 2000 are likely to cost $103.4 million per year and an estimated $4.7 billion over the course of their lifetimes.**

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[3] Intercultural Development Research Association, 2002

What Has Worked Well in Combating High Dropout Rates?

The disappointing news is that there is no "one best way" to prevent students from dropping out of school. The good news is that a number of programs and approaches seem to have been successful in reducing dropouts. The bad news is that attacking the problem of large dropout rates can be expensive. The good news is that a successful attack will more than pay for itself in increased human potential for the individual and in increased revenues for the state.

As is often the case, many programs designed to reduce the dropout rates have been implemented with great commitment to success but little attention paid to measuring that success, so that even the programs that appear to work well often cannot prove that they are effective. Nonetheless, there are programs with records indicating that they have a positive impact on participants' probability of completing high school.

What programs have worked in other states?

A number of programs seem to have had success in alleviating high dropout rates, including:

☐ **Advancement Via Individual Determination (AVID),** involving reform in middle through high schools with underachieving students in order to provide a rigorous college preparatory curriculum to most students.

☐ **Achievement for Latinos through Academic Success (ALAS),** utilizing a multi-faceted approach engaging home, school and community in providing social problem-solving training, counseling and recognition for academic excellence.

☐ **Mathematics, Engineering, Science Achievement (MESA),** employing a challenging environment that includes MESA classes, academic advising, peer group learning, career exploration, parent involvement and other services.

☐ **Project Grad (Graduation Really Achieves Dreams),** involving students in summer academic institutes and paid internships as well as engagement of parents, improved instruction and school discipline.

☐ **SCORE,** bringing together administrators, counselors, teachers, parents and students to improve academic achievement through a common core curriculum, development of study skills and provision of support personnel.

☐ **Upward Bound,** engaging students and schools since the 1960s in extra instruction, access to support services and financial assistance, and participation in an intensive summer academic program at a college campus.

What practices have worked in Arizona?

In Arizona, some of the practices with successful records are:

☐ **Achieving a College Education (ACE),** operating through South Mountain Community College since 1987 and involving students from Phoenix Union and Tempe Union High School Districts taking college courses while in high school as well as participation in additional summer and Saturday programs.

☐ **Coca-Cola Valued Youth Program,** developed by IDRA in 1984 and currently working with students in Tempe schools, placing junior high students in positions of responsibility as tutors of elementary school students.

☐ **Hispanic Mother-Daughter Program,** initiated by Arizona State University in 1984 and working with girls from the 8th grade through college by involving them and their mothers in a support network including tutoring, counseling and community role models.

☐ **Jobs for Arizona's Graduates (JAG),** a local affiliate of a national program serving six Arizona School Districts (Camelback, Carl Hayden, Dysart, McClintock, Peoria and Tolleson Union) with a multi-faceted approach including specialists working with groups of students, instruction in employment competencies, a student organization, and career development skills

Are there any common themes in these successful programs?

As the IDRA study pointed out, some common elements in the programs that appear to work are:

☐ Individual attention and support from an educator committed to the success of the student
☐ Schools that genuinely value all students
☐ Partnership between family and school, with a common focus on success for the student
☐ Schools that adapt creatively to the characteristics of their students and their environment
☐ Educators equipped with the tools to ensure students' success (i.e., high quality, professionally developed teachers with the necessary funds and materials)

What Should the Citizens and Leaders of Arizona Do About the Dropout Crisis?

> *The tide of dropouts in Arizona can only be turned by an urgent and concerted effort of an aware public and committed leaders.*

We must devote time, attention and resources to saving our children from the limited futures available to those who drop out of school. This crisis demands immediate attention and action as well as long-term changes in the educational system of our state.

Some recommended policy changes arising from IDRA's study, and the responsibility for implementing them, would include the following:

What Should Our Elected Leaders in Arizona Do?

Our State Legislature and Governor must:

- Reinforce requirements that all schools submit required dropout and graduation-related data in a timely manner
- Support funding for the Arizona Department of Education to expand existing monitoring, data gathering/auditing, and enforcement efforts to ensure full compliance with state dropout and graduation reporting requirements.
- Undertake a new major statewide reform that includes establishing new state graduation rate goals and developing a statewide plan for increasing local graduation rates and reducing related dropout numbers.
- Develop a new funding formula category that includes calculations of the number of at-risk students in a district and that targets dropout prevention and recovery programs for support
- Consider raising the exemption age for compulsory school attendance
- Explore ways to find or develop sufficient funding to support schools' efforts to provide a quality education for all students and to adopt programs designed to reduce the number of dropouts

What Should the Arizona Department of Education Do?

The Arizona Department of Education should:

- Complete the upgrading of the student information system as soon as possible to facilitate state-level student tracking and research on student persistence and graduation
- Partner in the development of a statewide clearinghouse for effective dropout prevention and recovery programs
- Conduct a comprehensive study of state costs resulting from students leaving school prior to graduation in order to solidify the need for ongoing support from the business and education sectors
- Support a coordinator in each district who will have primary responsibility for monitoring and supporting dropout prevention efforts
- Include graduation rate data in state accountability provisions with appropriate definitions for graduations rates and some weighting as well as sanctions and rewards for performance on reducing dropout rates
- Limit the time for finalizing counts to no more than one year to help inform dropout reduction and recovery efforts
- Support middle school programs aimed at dropout prevention and recovery efforts as well as high school programs
- Support early education awareness efforts of other state agencies *(AMEPAC Addition)*

What Should Local Leaders and School District Officials Do?

Local officials, community leaders and school district personnel should:

- Expand community awareness through local schools reporting on dropout and graduation rates via local print media and/or community forums
- Inventory and evaluate thoroughly the existing dropout prevention and recovery efforts, eliminating those determined to be least effective and implementing new efforts that have data documenting their effectiveness
- Create and maintain a district coordinator with primary responsibility for monitoring and supporting dropout prevention efforts
- Develop community action teams that are comprised of school, community, private sector, college/university, parent and high school student representatives to help raise awareness and to help design, evaluate and monitor community-level dropout and graduation-related efforts

What Steps Can We Take to *"Stem the Tide"* of Dropouts in Arizona?

Success Today for Arizona's Youth (STAY) in School Initiative

AMEPAC has been studying the dropout problem in Arizona for several years. It has commissioned and released findings from four research studies in hopes that someone would "take the bull by the horns" and initiate a concerted systemic effort to address the dropout crisis. As a result of this research and emphasis from AMEPAC, the Arizona Commission for Postsecondary Education has formed the Success Today for Arizona's Youth Committee to implement the STAY in School Initiative. The STAY Committee will be comprised of community leaders and educators who take action on the recommendations listed above.

The primary focus of the STAY Committee will be to:

- Establish a statewide clearinghouse for effective dropout prevention and recovery programs
- Expand community awareness through local schools reporting on dropout and graduation rates via local print media and/or community forums
- Inventory and evaluate thoroughly the existing dropout prevention and recovery efforts, eliminating those determined to be least effective and implementing new efforts that have data documenting their effectiveness
- Develop community action teams that are comprised of school, community, private sector, college/university, parent and high school student representatives to help raise awareness and to help design, evaluate and monitor community-level dropout and graduation-related efforts

AMEPAC's "Stem the Tide" Campaign

AMEPAC has planned a series of 32 community workshops to disseminate the findings of the "Dropping Out of Arizona's Schools" research study. The workshops are intended to create awareness about the dropout crisis and engage educators and community leaders in the STAY in School Initiative. In addition to sharing the findings from the research study, AMEPAC members will provide each community with a profile of economic conditions in their community that can benefit from a well-prepared workforce as well as a summary of existing dropout prevention efforts. Communities may sign a commitment to be a STAY in School Task Force community and participate in the evaluation of existing practices and receive recommendations for new "best practices" where needed.

AMEPAC would like to acknowledge the input of all members with special appreciation to Dr. Judith Doerr and Ms. Tonya Drake for their writing and formatting expertise.

Intercultural Development Research Association. (2002) ***Dropping out of Arizona's schools: The scope, the costs, and successful strategies to address the crisis,*** **commissioned by the Arizona Minority Education Policy Analysis Center, Phoenix, AZ.**

Dropping Out of Arizona's Schools:

The Scope, the Costs, and Successful Strategies to Address the Crisis.

Spring 2002

Arizona Minority Education Policy Analysis Center
A Policy Analysis Center of the Arizona Commission for [illegible]

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Executive Summary

This paper was commissioned by the Arizona Minority Education Policy Analysis Center of the Arizona Commission on Postsecondary Education. The approaches used, conceptually and methodologically, build on the work that the Intercultural Development Research Association (IDRA) has done in the area of dropouts in Texas over the past 15 years. While modeled after earlier state studies, the analyses conducted are based on Arizona student and program data obtained from the Arizona Department of Education, national data sources including the National Center for Education Statistics (NCES), and other researchers who compiled and reviewed state-level information.

Before discussing possible remedies, this report describes the probable magnitude of the dropout issue in Arizona, the possible cost of the problem to the state in both economic and human terms, and the policies that may need to be addressed to facilitate the adoption and implementation of local and state dropout prevention and recovery efforts.

Cost of Dropouts – Major Findings

- For every student Arizona schools fail to keep in school through graduation, the state loses money in lost earning capacity and incarceration expenses. For the class of high school dropouts that would have graduated in 2000, total costs to Arizona were an estimated **$214.4 million per year, and $14.25 billion** over the lifetime of these individuals.

- For every $1 spent on getting students all the way through to graduation, the state saves $66 in state services and lost revenues.

Recommendation

- Arizona should conduct a comprehensive study of state costs resulting from students leaving school prior to graduation, including analyses of lost wages and related state taxes, incarceration costs, job training and unemployment expenses, and other state costs that may be significantly impacted by lower levels of education.

Dropout and Graduation Counts – Major Findings

- According to the Arizona Department of Education's annual dropout studies, since 1994, a total of 168,004 high school students have dropped out of Arizona high schools – enough to populate a small city.
- In its analysis of high schools' holding power in Arizona, IDRA determined that only three out of every 10 students entering Arizona as freshmen in 1996-97 were not still enrolled in their senior year in 1999-00, an overall **statewide attrition rate of 31.8 percent** for that group.
- Translated to students, the 31.8 percent attrition rate means that a total of 45,971 students of an expected 67,443 12th grade enrollment were still enrolled in school, representing a loss of 21,472 students from that one class of students.
- **Arizona's Native Americans, Hispanic and Black high school students drop out at disproportionate and alarming rates.** Of the freshman class of 1996-97, 42.7 percent of Hispanics, 48.3 percent of Native Americans, and 32.6 percent of Black pupils were lost from enrollment by their group's senior year.
- Though White students' attrition was estimated at 24.2 percent, lower than all but the Asian sub-group of students, that **number still represents an estimated loss of 9,057 White students**. Because White students constitute the largest number of students in Arizona schools,

the 9,057 White students represent **40.8 percent** of the students lost from the total cohort.

- **Not all students who drop out are from high school**. In a related attrition study that considered middle school students, another researcher estimated that only **60 percent of Arizona eighth graders** from the eighth grade class of 1993 were still enrolled in high school five years later, converting to a 40 percent attrition rate.

Recommendations

- Given the magnitude of the dropout problem, Arizona should launch a major statewide effort to address the dropout issue at the state and local community levels. The initiative should be structured in a way that meaningfully engages all major stakeholders including state officials, local school representatives, business and community leaders, parents and students.
- Because the extent of the problem varies across student groups and communities, efforts should be targeted to address groups, schools and areas with the greatest needs.
- Graduation rate data should be included in state accountability provisions with appropriate weighting and related sanctions for excessive dropout rates and rewards for accelerated reduction of dropout rates.

Dropout Counting and Reporting – Major Findings

- Some state policies for identifying and counting dropouts and high school graduates are in place.
- Not all Arizona schools submit data needed to calculate local and statewide graduation and dropout rates.
- Although the state requires schools to submit dropout data with sanctions for schools that do not comply, lack of state resources to monitor compliance and audit school data significantly limit state-level staff ability to prescribe **consequences for schools that fail to submit requested dropout or graduation related data.**
- Arizona currently, and appropriately, does not include either GED or unverified enrollment counts in its dropout rate calculation, a practice that contributes to a more accurate estimate of students who annually drop out from Arizona high schools.

Recommendations

These are ongoing efforts by the Arizona Department of Education that IDRA supports.

- The state of Arizona should continue to **require all schools and school districts to submit enrollment** and student status data to calculate graduation and dropout rates on a yearly basis, and the State Department of Education should consequently report annually graduation and dropout rate data. It should also increase the application of sanctions for schools or districts that fail to comply within reasonable time frames.
- Dropout rate calculations should continue **to include GED students, unverified transfers, and all other "status unknown" students** in local and state dropout counts.
- Graduation rate studies should exclude, but report separately, numbers of students who: (1) are enrolled in or completed GED programs, and (2) have finished all course requirements but failed to pass the AIMS test.
- The state should strengthen penalties or sanctions for schools who fail to submit required dropout or graduation data and incentives or rewards for those schools that comply.

State Dropout and Graduation Standards – Major Findings

- There is currently no established **graduation rate goal** for the state as a whole or for individual high school districts.
- State law prescribes that schools will not exceed an annual dropout rate of 6 percent, which **converts to only a 76 percent graduation rate target over four years**.
- Though the state accountability system includes provisions for considering local school and district dropout rates, the 6 percent benchmark established is so low that few if any districts fail to meet the state standard, minimizing the perceived severity of local and state dropout issues.

Recommendation

- The state of Arizona should consider providing additional resources to expedite the completion of the new SAIS system to facilitate state-level research on student persistence and graduation.

Dropout Prevention and Recovery Programs – Major Findings

- There is no current major statewide initiative that is focused on addressing the Arizona dropout issue.
- There is currently no statewide comprehensive plan in Arizona that identifies research-based and effective dropout prevention and recovery programs. In addition, there is no statewide initiative to disseminate information on effective dropout prevention and recovery programs.
- There are an inadequate number of dropout prevention programs in Arizona that have adequately evaluated and documented their effectiveness over time. A small number of programs have documented their impact on dropout prevention and recovery efforts, and a few others show promise but require additional research.
- Research shows that students drop out of school for a number of reasons. However, proposing that student characteristics are the primary cause for dropping out of school is inaccurate and not useful to finding a solution to the problem. Schools, with support from state and other sources, are the primary institutions that decrease the number and proportion of students who leave schools.
- There is no single all-inclusive program for addressing the dropout issue. Programs must be varied to address school, student and family needs. All programs should value all students, families and communities.
- All dropout prevention and recovery programs should be informed by strong evaluation plans that identify which aspects of school dropout prevention or recovery programs work and which may need to be modified or eliminated and all programs should be part of a larger plan that requires schools to engage in sound educational practices for all of their students.
- Any short-term costs invested for dropout prevention will far outweigh the costs involved if that same student drops out of school. Compare the cost benefits: **for every $1 invested in keeping students in school until high school graduation, the state saves $66 in costs** that would have gone to lost revenues, social support services, and judicial and incarceration costs that are estimated to result from dropping out.
- Lack of data on dropout program effectiveness limits the ability of the state to provide targeted funding that will reduce dropout rates.
- Arizona does not currently provide targeted funding to help local schools directly address their local dropout problems.
- Estimated costs to the state for implementing one proven dropout prevention program (the Coca-Cola Valued Youth Program) would be approximately $300 per student served.

- There is currently no centralized repository of information on effective dropout prevention or recovery efforts that could help guide local communities that wish to impact the dropout problem.

Recommendations

- The state should develop a statewide dropout prevention plan with specific goals, time lines, benchmarks, responsible and accountable parties and ongoing evaluation.
- Though funding for dropouts is included as a category in state funding to local schools, its inclusion in a block grant reduces the probability that sufficient resources will be targeted on this specific issue at the local level.
- Arizona should adapt a new funding formula category to provide targeted funding for dropout prevention and recovery programs for schools based on the number of pupils who are identified as at risk of dropping out of school.
- State dropout prevention programs should incorporate community oversight teams comprised of all relevant stakeholders including schools, colleges and universities, community, private sector, parents, and high school students to design and evaluate community-level dropout prevention efforts.
- Arizona should undertake a comprehensive evaluation of existing dropout prevention programs in the state to identify critical features of programs that succeed in keeping students in school through high school graduation and beyond.
- The state should consider increasing the compulsory age at which students are exempted from required school attendance. However, such initiatives must be accompanied by relevant changes in schools' dropout prevention and recovery efforts.
- The state of Arizona should create a state-level clearinghouse of effective, research-based dropout prevention and recovery programs that provide support to schools and communities implementing new or existing proven programs.
- The state should fund a district-level coordinator responsible for the effective implementation of dropout prevention and recovery programs.

The Cost of Dropouts for Arizona

Dropping out of school prior to graduation is a phenomenon that has plagued education in the United States since the days when many states chose to make attendance in school mandatory. Prior to 1950, students in most states were not required to attend school. And if they were, the requirements only applied until a particular grade level or age was attained. All states in the United States have now adopted compulsory attendance laws for students usually up to 15 to 18 years old. This includes Arizona, which requires students to attend school until they reach the age of 16 (U.S. Department of Education, 2000).

Documentation of school attendance in Arizona has long been a feature of state accounting and reporting systems, with total enrollment and attendance rates used as the major determinant to drive state financing of local school operations.

Student counts are considered crucial for estimating school funding needs. Numbers of students actually served impact a whole array of school services, including the number of teachers required, the textbooks needed, and similar services. Conversely, keeping track of the number of students who remain enrolled in the school system has been neglected in local school operations, not only in Arizona, but across the country.

Most people assume that public schools have a system for tracking their pupils. Based in its work with hundreds of schools IDRA has found, that due to the amount of human and capital resources required to develop and maintain such student tracking systems, particularly before the age of desktop computers, few local school systems actually have such systems. Even as student data base development was facilitated by emerging computer technology, only some larger schools faced with the challenge of tracking the enrollment status of thousands of pupils, actually did so.

As late as the mid-1980s, few states had any systems in place to help them track student enrollment or to calculate actual local, county or state dropout rates. While there are alternative ways to calculate annual and cohort (longitudinal) dropout rates, the best systems are based on individual student records accounting for every student who enrolled in a local school system. Why have states and local school systems often balked at the development of such student status tracking systems?

This lack of concern with school dropouts – of students leaving school prior to receiving their high school diplomas – was in part due to the fact that until recent decades, parts of local, state and national economies were dependent on the availability of unskilled and non-literate individuals to perform work tasks that did not require education. Up to the 1930s, when agriculture was a mainstay of the U.S. economy, a high school education was not a prerequisite to employment. As late as the 1950s, when many states moved to dependency on an industrial work force, a high school diploma was not perceived as essential to performing jobs associated with various industries. As the national economy evolved, more industries and workplaces came to expect and require that their workforces have at least a high school education.

Lack of adequate worker skills has recently caused many workplaces to expand their job preparation activities, costing billions of dollars in worker training and education (Horne, 1997). In fact, in a survey of workplace needs, employers complained of the need to upgrade workers' basic education skills in order to get them to a point of being productive workers (National Alliance of Business, 2001). This change in worker-related skills has drastically impacted the life chances of individuals who lack adequate educational preparation.

According to various national studies conducted over the last decade, job opportunities available to individuals without a high school education are rapidly dwindling. We also are witnessing an expanding gap in earnings of high school graduates compared to non-graduates.

The data on impact of education on workers' lifetime earnings have been recently calculated, reflecting that the gap in earnings between high school graduates and non-graduates has increased in recent decades. According to the National Center for Education Statistics (NCES), male high school graduates in 1998 earned an average of $7,800 more per year than male non-graduates. Female graduates earned $4,700 more per year than female non-graduates (U.S. Department of Education, 2000).

According to the same sources, the differentials between high school dropouts and individuals earning bachelor degrees is even more dramatic, with male college graduates earning an average of $22,300 more per year than non-graduates, and females earning $20,100 more than their non-graduating peers.

Though earning differences are the most obvious and direct consequences of student failure to complete high school, the costs to society go far beyond loss in earning power. According to a broad array of research studies, high school dropouts also result in lost tax revenue, as individuals who earn less also contribute less to state and national revenues through payroll, sales, and other user taxes (Levin and Bachman, 1972).

High school dropouts have also been noted to be over-represented among those who require worker compensation payments. They tend to be laid off more often and for longer terms, collecting greater proportions of unemployment than do high school graduates (Levin and Bachman, 1972).

Though most individuals who do not have a high school diploma are law-abiding citizens, dropouts as a whole are over-represented in the juvenile justice and later in the adult jail and prison populations. Though it should not be assumed, and it is not implied here, that dropping out automatically leads a person to violate state or federal laws, the diminished options and reduced life chances for students without a high school diploma apparently does make some more prone to become entangled in the judicial systems.

Over time, dropping out leads to more limited employment options and diminished earnings. Dr. Jay P. Greene notes: "Students who fail to graduate from high school face a bleak future. Because the basic skills conveyed in high school and higher education are essential for success in today's economy, students who do not receive those skills are likely to suffer with significantly reduced earnings and employment prospects" (2001).

Dropping out also has been linked to diminished opportunities for family members, as children of dropouts are more likely to fail to complete high school requirements themselves, perpetuating cycles of poverty and disadvantage for generations.

Though a contemporary reality in Arizona and many other states, dropping out of school is preventable with appropriate and timely interventions. Programs exist that have been proven effective in addressing the dropout issue. A few are found in Arizona, and many have been implemented in comparable communities around the country as identified in the Dropout Prevention and Recovery section of this paper.

Summary and Analysis of Arizona's Reported Dropout Rates

Most people will not address an issue until they become aware of its existence. Students dropping out of school has long been known to exist. Community members may see them at the street corners, in job training programs, in line at social support service agencies, and in other environments. Dropouts are not invisible, nor do they magically disappear from the population. Yet the extent to which they exist and how they impact social and economic realities are often grossly overlooked.

It is important to note that any discussion of school dropouts is a discussion of a lack of a school's success in getting an individual student all the way through the educational system, up to and through high school graduation. Part of the reason for the lack of focus on dropouts is that in past eras, dropouts "did not matter." The need for an unskilled labor force diminished or outweighed dropout identification and prevention as a local or state issue. Though job requirements and economic realities have changed, lack of past focus on dropout identification and prevention, and a current reluctance to confront the issue often combine to reinforce a general aversion to address the issue. Before assessing whether one should do something it is critical to assess what is known about the extent of the dropout issue in Arizona, and what is currently being done to address the issue.

"The future of Arizona is at risk. While the rapid growth of a new global information-based economy provides tremendous opportunities for all of Arizona's citizens, the state is at risk of missing out on potential benefits of the economic revolution. The risk factors for Arizona are real and alarming... among these is the alarmingly high rates at which students drop out of the education pipeline" (Governor's Task Force on Higher Education, 2000).

State Procedures for Counting and Reporting Dropouts

In Arizona, as has been the case in many other states, the state began to take a closer look at the dropout problem in the 1970s. At that time, the National Center for Education Statistics (NCES) and others who compile demographic information on the U.S. population estimated educational levels of citizens. One such statistic was based on individual self reports in U.S. Census Bureau surveys in which individuals were asked to report the "number of years of schooling" they had completed (U.S. Bureau of the Census, 1983).

Useful as a gross measure, these self reported data were quickly recognized as having limited utility, causing NCES to begin to compile information that was based on state agency reports that tabulated numbers of students enrolled, graduating from high school and earning high school equivalency diplomas (NCES, 1983).

Though useful for education policy development purposes, these nationally compiled statistics did not cause states to more closely examine their own counting and reporting practices. Starting in the 1980s however, a national movement to increase school accountability was developed in part due to significant increases in education funding in selected states. More states began to look at high school graduation and/or dropout rates at local school and state levels.

The state of Arizona first began to require schools to compile and report graduation and dropout data in the late 1980s. As the system currently operates, schools are required to submit official student enrollment data to the Arizona Department of Education. As noted by one state official, because the counts are the basis for calculating state education funding, there is a general consensus that the number of students reported as enrolled is relatively accurate and reliable.

These official annual student enrollment submissions are used by local schools and school districts to calculate local school, school district, county, and state level enrollment and school dropout rates.

Arizona's Reported Annual Dropout Rate

The Arizona Department of Education, Research and Policy Division is given primary responsibility for calculating and reporting district level dropout statistics. Since at least 1994-95, the division has compiled and reported the annual dropout rate for the state as a whole, for all of the state's school districts, and for individual charter and public schools.

As is the case in many other states, the state of Arizona calculates **annual dropout rates**. These are based on the number of students who are considered dropouts (defined in Arizona as "reported or official" dropouts, *plus* those students whose enrollment status is "status unknown" as prescribed by state education officials). To calculate the dropout rate, the state simply totals the number of dropouts (using state criteria) and divides that number by the total enrollment reported from July 1 through June 30 of any given school year.

For dropout calculation purposes, the state of Arizona considers reports of the number of students who have been *enrolled at any time in the school year* ending on June 30 of that school year. In addition to this base enrollment number, the state adds the total number of students enrolled in the prior year *who did not return* to an Arizona school in that same year, and whose re-enrollment status is unknown or not verified (Arizona Department of Education, 2001).

Based on the above methodology, the state of Arizona reported in its 1999-00 Dropout Rate Study that out of **365,701** students enrolled in Arizona schools in grades seven through 12, **30,186 were considered dropouts**. These 30,186 students constituted **8.3 percent** of the seven through 12th grade total enrollment span (the 30,186 total dropouts divided by the 365,701 total enrollment).

Exhibit 1 summarizes dropout data reported by the Arizona Department of Education for the last six school years compiled from Arizona dropout rate studies for each of those school years. The data reflect that the statewide dropout rates reported for 1994-95 through 1999-00 have been relatively consistent over the six-year period, with annual dropout rates hovering between the 8 percent and 9 percent level during that span.

Exhibit 1: Arizona Annual Total Dropout Rates, 1994-95 through 1999-00*

School Year	Total (Grades 7-12) Enrollment (including un-graded)	Total Dropouts	Annual Dropout Rate
1994-95	331,658	29,298	**8.8%**
1995-96	341,456	30,877	**9.0%**
1996-97	368,609	34,875	**9.5%**
1997-98	376,675	31,965	**8.5%**
1998-99	398,926	35,637	**8.9%**
1999-00	365,701	30,186	**8.3%**
Total		**192,838**	

** of the school districts reporting*

Source: Arizona 1999-00 Dropout Rate Study

Dropouts by School Level (Elementary School [7-8] and High School [9-12])

In the study, the state reports subsets of the dropout data, including analyses by grade level and school level (elementary level, including grades seven and eight, and high school level, including grades nine, 10,11, and 12). According to the state's report for 1999-00, out of a grade seven and eight statewide enrollment of 131,582 pupils, an estimated 4,089 students dropped out of school. These 4,089 pupils represented a 3.1 percent dropout rate in 1999-00. See Exhibit 2.

Arizona also calculates a separate annual dropout rate for its high schools. Included in these calculations are all students enrolled in the ninth through 12th grades in conventional public high

Exhibit 2: Arizona Annual Elementary (Grades 7-8) Dropout Rates, 1994-95 through 1999-00*

School Year	Grades 7 and 8 Enrollment	Total Dropouts	Annual Dropout Rate
1994-95	121,687	3,929	**3.2%**
1995-96	125,789	4,476	**3.6%**
1996-97	131,106	4,581	**3.5%**
1997-98	132,168	3,966	**3.0%**
1998-99	138,800	3,793	**2.7%**
1999-00	131,582	4,089	**3.1%**
Total		**24,834**	

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

Exhibit 3: Arizona Annual High School Dropout Rates, 1994-95 through 1999-00*

School Year	Total High School Enrollment (including un-graded)	Total Dropouts	Annual Dropout Rate
1994-95	209,971	25,369	12.1%
1995-96	215,667	26,401	12.2%
1996-97	237,503	30,294	12.8%
1997-98	244,507	27,999	11.5%
1998-99	260,126	31,844	12.2%
1999-00	234,119	26,097	11.1%
Total		**168,004**	

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

schools, and pupils reported as enrolled in all un-graded high schools in Arizona, which includes students enrolled in charter schools and other alternative educational settings in the state.

According to Arizona Department of Education dropout reports for the 1999-00 school year, out of a total high school enrollment of 234,119 pupils, an estimated 26,097 students were determined to have dropped out in 1999-00. This number converts to an **11.1 percent annual dropout rate in Arizona high schools which is higher than the 8.3 percent for grades seven through 12.** See Exhibit 3.

Annual Dropouts by Types

A closer examination of Arizona's dropout counting methods reveals that the state divides its dropout totals to enable it to distinguish between "officially reported" dropouts and students it has determined are of "status unknown." In other words, students who were previously enrolled, but who are no longer enrolled and for whom there is no verified evidence of re-enrollment in a school granting high school diplomas.

Of the 26,097 pupils counted as dropouts in 1999-00 in the ninth through 12th grade, 15,249 (or 57.6 percent) were from the category "status unknown." Discussions with Arizona Department of Education research staff indicate that the unknown status category may include some students who are still enrolled in Arizona or other school systems, but who are considered status unknown due to the absence of clear evidence that they are actually enrolled.

In a small-scale study involving a large school system, the state did find a percentage of the unknown status student population actually enrolled in another school. Limits in the methodology however did not enable it to generalize that finding to all schools – accentuating the need for a more comprehensive student tracking system.

Arizona's annual dropout report also disaggregates dropout counts to determine how many of the year's dropouts left during the regular school year, from those who do not return after the summer vacation. According to official state reports for 1999-00, of the 26,097 dropouts in that year, 22,912 (87.8 percent) left school during the school year with the remaining 3,185 (12.2 percent) failing to return over the summer.

An important observation however was that the 1999-00 summer dropout rate for students in grades seven and eight was 34.8 percent, which was more than three times the 12.2 percent of high school summer dropouts. This finding has obvious implications for possible interventions that will be discussed later in this report.

Also noted in the data analyses is that Arizona contributes to the dropout count by expelling students from its ninth through 12th grade schools, which are a subset of the dropout totals reported. In many other states expelled students are required to attend state-funded alternative schools allowing such students to remain enrolled and thus be excluded from dropout calculations. Expelled students accounted for 1,535 students, or 5.8 percent of Arizona's annual dropout rate in 1999-00. See Exhibit 4.

Annual Dropout Rates by Gender

In addition to compiling an annual dropout rate for its seventh and eighth grades and its high schools, Arizona calculates and reports annual dropout rates by gender (male and female) and race and ethnicity (White, Hispanic, Native American, Black, and Asian).

The state's gender-based analysis of dropout data mirrors national dropout studies that reflect that males drop out at slightly higher rates than females. Arizona males have an annual dropout rate of 9.3 percent – 3.3 percent in grades seven and eight, and 12.6 percent at the high school level. Females had an overall annual dropout rate of 7.2 percent in 1999-00, with the seventh and eighth grade rates reported as 2.9 percent, and a high school dropout rate of 9.6 percent.

Exhibit 4: Arizona Annual (Grades 9-12) Dropout Rates by Withdrawal Codes, 1994-95 through 1999-00*

School Year	Total High School Dropouts	Illness		Expelled		Official Dropout		Status Unknown	
1994-95	25,369	275	1.1%	994	4.0%	12,628	49.8%	11,472	45.2%
1995-96	26,401	187	0.7%	1,227	4.6%	12,168	46.1%	12,819	48.6%
1996-97	30,294	375	1.2%	1,523	5.0%	12,108	32.2%	16,288	53.8%
1997-98	27,999	197	0.7%	1,322	4.7%	10,741	38.4%	15,739	56.2%
1998-99	31,844	266	0.8%	1,774	5.6%	11,580	36.4%	18,224	57.2%
1999-00	26,097	295	1.1%	1,535	5.8%	9,018	34.1%	15,249	57.6%
Total	**168,004**	**1,595**		**8,375**		**68,243**		**89,791**	

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

Exhibit 5: Arizona Annual High School Dropout Rates by Racial and Ethnic Group, 1994-95 through 1999-00*

School Year	White Dropout Rate	Hispanic Dropout Rate	Native American Dropout Rate	Black Dropout Rate	Asian Dropout Rate
1994-95	9.1%	17.1%	17.8%	14.3%	6.6%
1995-96	9.5%	17.8%	18.3%	16.4%	7.0%
1996-97	8.6%	18.6%	22.6%	14.8%	6.1%
1997-98	7.7%	17.0%	18.8%	14.6%	5.8%
1998-99	8.5%	17.6%	19.1%	15.4%	8.2%
1999-00	8.1%	15.4%	16.8%	13.0%	4.8%

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

Exhibit 6: Arizona Annual High School Enrollment and Dropout Numbers by Racial and Ethnic Group, 1994-95 through 1999-00*

School Year	White		Hispanic		Native American		Black		Asian	
	Enroll.	Drop.	Enroll.	Drop.	Enroll.	Drop.	Enroll.	Drop.	Enroll.	Drop.
1994-95	124,216	11,296	58,047	9,912	14,701	2,617	8,935	1,277	4,072	267
1995-96	126,403	10,992	61,761	11,015	14,079	2,573	9,317	1,532	4,107	289
1996-97	136,761	11,819	68,725	12,806	16,947	3,834	10,491	1,557	4,579	278
1997-98	140,682	10,887	71,449	12,129	16,516	3,104	10,966	1,597	4,894	282
1998-99	147,643	12,531	76,739	13,514	18,216	3,483	12,187	1,879	5,341	437
1999-00	129,503	10,531	71,188	10,969	17,418	2,919	11,143	1,446	4,867	232
Total		**68,056**		**70,435**		**18,890**		**9,238**		**1,785**

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

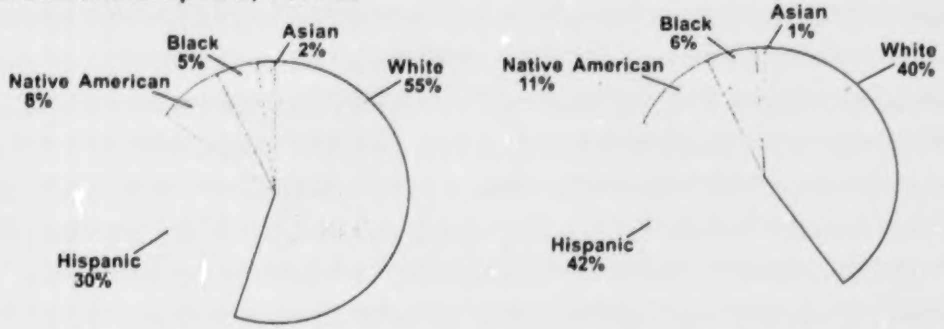
Annual High School Dropout Rates by Racial and Ethnic Group

Annual high school dropout data by race and ethnicity also tend to reflect national studies. In Arizona, in the 1999-00 school year, 16.8 percent of Native American students and 15.4 percent of Hispanic students were reported as dropping out of school. These rates were about double the 8.1 percent annual dropout rate reported for the state's White pupil enrollment in grades nine through 12. Dropout rates for Arizona's Black pupils were also high, with 13.0 percent reported as dropping out in a single year. Asian pupils enrolled in Arizona schools reflected the national trend of lower dropout rates, showing a 4.8 percent annual dropout rate in Arizona, lowest among all groups analyzed for grades nine through 12. See Exhibits 5 and 6.

Analysis of total enrollments for each racial and ethnic group in seventh through 12th grades considered in the dropout counts indicates that Hispanic students, Native American students, and Black students are over-represented among dropouts compared to their proportion of each level.

For example, while Hispanic pupils accounted for 30.4 percent of the state's 1999-00 high school enrollment, the group accounted for 42 percent of all high school dropouts. In a similar vein, Native American students accounted for 7.5 percent of the high school enrollment in that same year, but they accounted for 11.2 percent of the high school dropouts. Conversely, White students and Asian students are under-represented among dropouts. While White pupils accounted for 55.4 percent of the high school enrollment, they made up 40.4 percent of the high school dropout population. See Exhibit 7.

Exhibit 7: Racial and Ethnic Proportion of Population and of Arizona Dropouts, 1999-00



Proportion of Population

Proportion of Arizona Dropouts

Annual Dropout Rates by County

Another way Arizona assesses its annual dropout data is by county. Exhibit 8 summarizes county-level dropout data for each of the state's 15 counties. Those data show that annual dropout rates vary from county to county, with some of the state's smallest counties (in terms of student population) reflecting the lowest dropout rates. By contrast, the counties with some of the largest student enrollments (e.g., Maricopa) reflect the highest rates. An examination of the six-year trends shows that counties reflect a mixed history, with most showing some decline in dropout rates, while a few reflect annual dropout rate increases over the six-year span reported.

Exhibit 8: Arizona Total Grade 7-12 Enrollments and Dropouts by County, 1994-95 through 1999-00*

County		1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
Apache –	**Enrollment**	**7497**	**6,496**	**7,407**	**7,455**	**7,545**	**6,535**
	Dropout Count	901	708	789	441	810	642
Cochise –	**Enrollment**	**10,746**	**10,285**	**10,583**	**10,359**	**10,244**	**8,170**
	Dropout Count	1,267	845	932	779	831	495
Coconino –	**Enrollment**	**10,029**	**10,062**	**11,205**	**10,640**	**10,985**	**9,906**
	Dropout Count	990	1,052	1,248	977	887	821
Gila –	**Enrollment**	**4,314**	**4,373**	**4,349**	**4,429**	**4,725**	**4,294**
	Dropout Count	468	414	445	433	598	391
Graham –	**Enrollment**	**2,806**	**2,993**	**2,901**	**3,058**	**3,095**	**2,998**
	Dropout Count	194	172	173	177	199	230
Greenlee –	**Enrollment**	**1,169**	**1,034**	**1,161**	**1,117**	**1076**	**912**
	Dropout Count	46	52	42	26	27	28
La Paz –	**Enrollment**	**1,522**	**1,508**	**1,502**	**1,504**	**1,599**	**1,128**
	Dropout Count	180	111	139	161	174	96
Maricopa –	**Enrollment**	**181,954**	**188,674**	**206,607**	**213,193**	**227,068**	**209,022**
	Dropout Count	13,973	15,926	18,054	16,947	18,644	16,093
Mohave –	**Enrollment**	**9,702**	**10,200**	**10,676**	**10,919**	**10,845**	**11,578**
	Dropout Count	1,328	1,252	1,176	1,199	984	1,252
Navajo –	**Enrollment**	**8,926**	**9,597**	**11,033**	**10,530**	**11,278**	**12,010**
	Dropout Count	643	679	1,292	967	1,173	1,077
Pima –	**Enrollment**	**54,111**	**56,291**	**57,160**	**58,677**	**60,271**	**56,627**
	Dropout Count	5,307	6,139	6,379	5,559	5,913	4,825
Pinal –	**Enrollment**	**11,094**	**11,399**	**11,968**	**12,156**	**12,594**	**9,486**
	Dropout Count	1,243	1,228	1,450	1,760	1,632	943
Santa Cruz –	**Enrollment**	**3,934**	**4,139**	**4,567**	**4,130**	**4,605**	**5,030**
	Dropout Count	356	283	384	292	388	409
Yavapai –	**Enrollment**	**9,686**	**9,740**	**11,004**	**10,373**	**11,904**	**11,426**
	Dropout Count	938	747	1,032	536	999	1,078
Yuma –	**Enrollment**	**13,015**	**13,103**	**13,638**	**13,922**	**14,355**	**13,903**
	Dropout Count	1,425	1,203	1,114	968	1,197	1,075
Arizona Dept. of Youth Training and Rehabilitation –	**Enrollment**	**1,153**	**1,562**	**3,028**	**4,213**	**6,737**	**2,676**
	Dropout Count	39	36	226	443	1,181	731
State –	**Enrollment**	**331,658**	**341,456**	**368,609**	**376,675**	**398,926**	**365,701**
	Dropout Count	**29,298**	**30,877**	**34,875**	**31,965**	**35,637**	**30,186**

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

Conclusions Related to Arizona Dropout Counting and Reporting

Despite the fact that dropout rates are not similar among minority and non-minority populations, the annual dropout rates as a whole are unacceptably high. Analyses of Arizona's annual dropout rate reports reflects that the yearly dropout rate for the state, as calculated by the department of education, has averaged between 8.5 percent to 9.0 percent per year since 1994-95.

Of greater concern is the fact that annual dropout rates for high school, when analyzed as a separate category reflect that between 10 percent and 12 percent of all high school pupils leave school every year. The data also show that, while the 11.1 percent to 12.8 percent annual dropout rate is common in regular high school settings, the sub-group of high school students attending un-graded secondary schools (charter schools) reflects even greater losses ranging from 15.5 percent to 29.7 percent in different years. See Exhibit 9.

Adding all counts of dropouts reported by the Arizona Department of Education for each year since 1994-95, IDRA has estimated that Arizona has lost a total of 168,004 high school pupils over this six-year span. This is too many lost students for any state that wishes to remain competitive in today's high tech job markets.

Exhibit 9: Arizona Ungraded Secondary Schools Dropout Rate 1994-95 through 1999-00*

School Year	Total Ungraded Secondary School Enrollment	Total Ungraded Secondary School Dropouts	Annual Ungraded Secondary School Dropout Rate
1994-95	not reported	–	–
1995-96	3,305	513	15.5%
1996-97	7,404	2,603	35.2%
1997-98	6,416	1,063	16.6%
1998-99	13,132	3,796	28.9%
1999-00	8,794	2,611	29.7%
Total		**10,586**	

** of the school districts reporting*
Source: Arizona 1999-00 Dropout Rate Study

A Major Caveat

In onsite discussions with Arizona Department of Education, Research and Policy Division, IDRA was advised that both the annual dropout rate and the graduation rate reports published by the department include **only those public schools who voluntarily submit their data** in any given year. Due to the fact that not all schools report the requested dropout data, all of the statewide summaries are incomplete.

Though the department of education is required by statute to compile and report dropout information, until adoption of Proposition 301, there had been no comparable requirement that local school districts submit the data required for the statewide summary report. The number of schools and students excluded from the statewide report has, therefore, varied from year to year. This legislation has given the department of education the authority to reduce classroom site funds if schools do not report. It will be important that compliance with the new requirements be closely monitored.

An example of the impact of this lack of reporting is evident from a comparison of the 1998-99 and 1999-00 annual dropout totals in grades nine through 12. In 1998-99 the state reports 31,844 dropouts. In 1999-00 the dropout count declines to 26,097. One could easily assume that this lower number resulted from extensive successful dropout prevention efforts. Another more plausible explanation however could be that fewer schools submitted their data in 1999-00 than in 1998-99. Until all schools submit the required dropout data on an annual basis, all state dropout reports must be considered with caution.

Arizona Department of Education staff points out that the state is in the process of constructing a sophisticated data base that will eventually track the status of each Arizona student and allow for calculation of school, district and statewide dropout statistics. Unfortunately that data system is still in the developmental stages and, according to the Arizona Department of Education, is not expected to be fully operational until 2004 or 2005. Until this system is operational, Arizona may have to rely on a combination of dropout reporting measures to triangulate various data to arrive at an estimate of the true extent of the dropout problem.

Though annual dropout rates are one important way of measuring schools' holding power, dropout experts recognize other ways to assess the extent of the problem. The primary role of determining when individual pupils may be leaving the school system is vital for informing community and school officials in order to craft appropriate dropout prevention and recovery efforts. Waiting to determine who may have left complicates dropout recovery efforts, for the longer a student is out of school, the more difficult it will be to successfully re-integrate him or her into the existing system. However, it is also important to acquire estimates of school holding power over time.

Arizona Department of Education Graduation Rate Study

In response to legislative requirements, the Arizona Department of Education, Research and Policy Division conducted a study of the four-year graduation rate for the class of 1994. Data for 1992-93 graduation rates were included in the 1993-94 study to facilitate comparison. In its study, the department tracked the status of students from the class over time, dating back to the year that the students were entering high school as ninth graders. In addition, the class of 1994 was adjusted to include all students who had transferred into the class at any time over the four years ending in 1993-94. It also considered and adjusted for all students who had transferred or died over the course of the four years involved (Arizona Department of Education, 1996). According to policy and research staff, the department has conducted no graduation rate study since.

In the graduation rate study, high school graduates were defined as all students who (1) completed graduation requirements, and (2) received a certificate of completion, certificate of attendance, or another non-traditional diploma recognized as meeting graduation requirements. Not included were students who left school and later earned GED certificates.

According to that report, only 69.3 percent, or 29,826 of the 43,057 students in the class of 1994 remained in school until high school graduation. Based on its extensive experience in dropout related research, IDRA contends that the inverse of a graduation rate is the state dropout rate for the 1994 cohort studied. This means that according to the department's report, about 30.7 percent, or 13,231 pupils, from the class of 1994 did not graduate as expected. To its credit the state's study did establish that 2,770 pupils who did not graduate were still enrolled allowing it to estimate a 24.3 dropout rate for the 1994 cohort studied. See Exhibits 10 and 11.

Graduation Rates by Gender and by Race and Ethnicity

In addition to the statewide data, the Arizona Department of Education also analyzed the graduation data by gender and by race and ethnicity. According to the report, 73.7 percent of females graduated at the end of the fourth year of high school. Males had a lower graduation rate with only 65 percent of the male cohort successfully meeting requirements after four years.

Racial and ethnic group cohort dropout rates are summarized in Exhibits 10 and 11. The data indicate that, for the class of 1994, over the four years tracked, White pupils dropped out at a rate of 18.9 percent, Hispanic pupils had a dropout rate of 34.4 percent, Native American pupils had a dropout rate of 33.6 percent, Black pupils had a dropout rate of 30.6 percent, and Asian pupils had a dropout rate of 11.8 percent.

Exhibit 10: Class of 1994 Graduation Rate Study*

	Class Size	Still Enrolled	Four-Year Graduates	Graduation Rate	Percent Still Enrolled	Four-Year Dropout Rate	Number Dropouts
Male	21,994	1,747	14,296	65.0%	7.9%	27.1%	5,951
Female	21,063	1,023	15,530	73.7%	4.9%	21.4%	4,510
White	26,074	1,278	19,881	76.2%	4.9%	18.9%	4,915
Black	1,643	128	1,013	61.7%	7.8%	30.6%	502
Hispanic	11,396	957	6,523	57.2%	8.4%	34.4%	3,916
Native American	3,037	337	1,679	55.3%	11.1%	33.6%	1,021
Asian	907	70	730	80.5%	7.7%	11.8%	107
Total	**43,057**	**2,770**	**29,826**	**69.3%**	**6.4%**	**24.3%**	**10,461**

** of the school districts reporting*
Source: Graduation Rate Study Class of 1994 Arizona Department of Education, 1996

Exhibit 11: Class of 1993 Graduation Rate Study*

	Class Size	Still Enrolled	Four-Year Graduates	Graduation Rate	Percent Still Enrolled	Four-Year Dropout Rate	Number Dropouts
Male	22,295	1,912	14,445	64.8%	8.6%	26.6%	5,938
Female	21,580	1,104	15,388	71.3%	5.1%	23.6%	5,088
White	26,785	1,396	19,883	74.2%	5.2%	20.6%	5,506
Black	1,775	148	1,056	59.5%	8.3%	32.2%	571
Hispanic	11,388	1,130	6,335	55.6%	9.9%	34.4%	3,923
Native American	3,064	278	1,883	61.5%	9.1%	29.5%	903
Asian	863	64	676	78.3%	7.4%	14.3%	123
Total	**43,875**	**3,016**	**29,833**	**68.0%**	**6.9%**	**21.5%**	**11,026**

** of the school districts reporting*
Source: Graduation Rate Study Class of 1993 Arizona Department of Education, 1996

A related finding was that not all students missing from the class of 1994 had dropped out. Of the total original enrollment, an additional 6.4 percent of pupils were found to be "still enrolled" in the high schools.

The graduation rate study completed for the class of 1994 also provided comparable summary data for the class of 1993. For that 1993 cohort, the four-year graduation rate was 68.0 percent (compared to 69.3 percent for the class of 1994). The cohort dropout rates for most subgroups were similar to, though somewhat lower than the class of 1994, with Hispanic students dropping out at a rate of 34.4 percent, Native American pupils at 29.5 percent, and Black pupils at 32.2 percent. White pupils and Asian pupils reflected somewhat higher dropout rates in 1994 than in 1993. According to the report, White pupils dropped out at a rate of 20.6 percent in 1993 (compared to 18.9 percent in 1994), while Asian pupils had a dropout rate of 14.3 percent compared to 11.8 percent in 1994.

A Major Caveat Regarding ADE Annual and Graduation Rate Data

After reviewing the graduation rate data, IDRA staff met with Arizona Department of Education, Research and Policy Division to discuss the methods used in the class of 1994 graduation rate study. In that discussion, Arizona Department of Education staff cautioned that the study was limited by the extent of response (or non-response) to the request for cohort data from local schools. Lacking any authority to require compliance with data requests, the Arizona Department of Education was, and historically has been, unable to require universal submission of the data needed to compile the required information. This lack of data from some schools makes the statistics reported incomplete in that not all Arizona schools are included in the study. Given the missing data, which varies from year to year, the state-reported rates are the best available estimates, but may be understating the extent of the dropout problem in Arizona schools. Only when all schools submit all required data will a full state assessment of the extent of the dropout problem be possible.

An Alternative Assessment of Arizona's Longitudinal or Cohort Dropout Rate – Attrition Estimates

Another critical way of examining dropout rates involves tracking groups of pupils from the time they enter the system (kindergarten) through the 12th grade to determine how many of a particular group progress through the system and graduate. This assessment of students' progress through the whole system is called either a *cohort analysis* or *longitudinal dropout rate*. It allows policymakers, community members, and parents to make judgements about the quality and effectiveness of their schools.

To conduct a cohort tracking study to determine the number of pupils who make it all the way from kindergarten or first grade to graduation, a state would need a system that allows it to track the enrollment of every student. While the state of Arizona is in the process of developing such a student-based system, it has not yet completed that process. Lacking the necessary data, the State Department of Education has been unable to calculate a state, district, or county cohort or longitudinal dropout rate or its inverse, a statewide graduation rate.

While some graduation rate data are compiled and submitted by individual districts, lack of mechanisms for verifying the self-reported data also gives such submissions limited utility. In the absence of individual student tracking data in many states, IDRA developed an alternative method to estimate the number of students that may be lost from enrollment over a period of several years.

In 1986, when IDRA conducted its first attrition study, many states had not developed student tracking systems that allowed them to precisely calculate the actual dropout rate for a group of students who were tracked over several years. Thus, lack of student-specific data thwarted efforts to determine how many students out of thousands of high school freshman enrolled in a given year were still enrolled four years later as seniors.

While it is indeed difficult to determine the exact number of pupils that may have dropped out in such circumstances, it is possible to develop estimates of those losses. By examining state-level enrollment data, we can calculate an estimated dropout or school "attrition rate."

Using such an approach, IDRA has developed dropout estimates for Texas since 1986. IDRA's attrition studies have significantly impacted state policy, leading to the adoption of comprehensive dropout prevention and recovery policy, and ultimately leading to the creation of a student tracking process that has substantially improved the state's ability to determine the actual enrollment status of every pupil on an ongoing basis. Since Arizona does not currently calculate its own cohort dropout or graduation rate, we applied the IDRA attrition formula to existing state enrollment data to arrive at estimates of its longitudinal dropout rate.

The calculation of an attrition rate requires access to enrollment data for specific grades and grade spans. IDRA acquired such data from the Arizona Department of Education, which posts an array of school, district, and state level enrollment data. This student enrollment information, in addition to being reported in the aggregate or total, is also provided for sub-groups of the student population including breakouts by grade level (grades seven to 12), counts of students in high schools that are identified as un-graded, counts by gender (male and female), and counts by racial and ethnic groups (Asian, Black, Hispanic, Native American, and White).

Given available data, IDRA was able to calculate an attrition rate for the total state high school enrollment excluding un-graded school counts. Because the attrition formula relies on specific grade level enrollment data for parts of its calculations, inclusion of un-graded counts was deemed inappropriate. In order to facilitate comparisons with other states' attrition rates, which often are limited to the high school level, it was determined that our analysis of the Arizona data would also be limited to high school attrition.

The IDRA Attrition Formula

The IDRA attrition formula involves: (1) determining the enrollment in ninth grade for a specific school year, which is considered the *base* year; and (2) determining the enrollment level for the year in which that group of ninth graders would have been enrolled in the 12th grade, or *end* year.

It would be relatively easy to propose that one simply subtract the total number of students in the ninth grade, from the total enrolled in the 12th grade four years later to compute an attrition rate. While a "neat" calculation, such an approach would not take into account any change in the overall enrollment of that grade cohort over the years involved and thus could yield inaccurate results.

For example, if there were 400 freshmen enrolled in ninth grade in the base year and only 300 seniors in the end year, one could say that the attrition rate was 25 percent (400-300÷ the original 400 pupils enrolled in the ninth grade). But, it may be that an additional 50 enrollees joined the original ninth grade group over the time they were tracked. Adding these new pupils to the original number of ninth graders would have caused one to expect a 12th grade enrollment of 450, rather than 400. If only 300 of that 450 made it to their senior year then the real attrition rate for the group being tracked would be 450-300÷450, or 33 percent (rather than 30 percent).

IDRA's attrition formula incorporates an adjustment to account for the upward or downward change in enrollment over the time being analyzed. Because specific student level data are unavailable to allow a more precise adjustment, the formula determines the difference between the ninth to 12th grade enrollment in the base year, and the ninth to 12th grade enrollment in the end year, and adjusts the original ninth grade number to reflect the proportion of that growth that would have impacted the grade level involved, yielding a truer estimate of the 12th grade enrollment that could be expected to result from the enrollment changes that normally occur (Cárdenas, et. al, 1987). See Appendix 3 for an expanded description of IDRA's attrition model.

In a recent article in *Education Week*, writers note that accurate state and local data on dropouts are difficult to acquire (Viadero, 2001). Other researchers who have employed attrition based dropout models note in the absence of these data, attrition based approaches may be the best alternative currently available to arrive at more reliable estimates of local and state dropout rates (Balfanz and Legters, 2001).

Using IDRA's attrition model, we were able to calculate an estimated longitudinal attrition rate for Arizona's high schools for the cohorts that would have graduated in 1998, 1999, and 2000, as well as estimated attrition rates for sub-groups. Sub-group rates were calculated by gender and by racial and ethnic group for the three school years. Major findings for each area follow.

Arizona Attrition Rates

Based on IDRA's analysis, **Arizona high schools experienced a 32.8 percent overall attrition rate for the class of 1998, 32.8 percent for the class of 1999, and 31.8 percent for the class of 2000.** IDRA estimates that approximately three out of 10 students who enter high school in Arizona are not still enrolled in the system four years later. The level of attrition is similar to but somewhat lower than the overall attrition rate for Texas, which was estimated at 42 percent in the 1999-00 school year. See Exhibit 12.

Exhibit 12: Overall Enrollment and Attrition Rates in Arizona

1994-95 9th Grade Enrollment	1997-98 12th Grade Enrollment	1994-95 9-12th Grade Enrollment	1997-98 9-12th Grade Enrollment	1997-98 Expected 12th Grade Enrollment	Attrition Rate (%)	Number Students Lost To Attrition
59,150	43,402	194,196	212,170	64,625	32.8%	21,223

1995-96 9th Grade Enrollment	1998-99 12th Grade Enrollment	1995-96 9-12th Grade Enrollment	1998-99 9-12th Grade Enrollment	1998-99 Expected 12th Grade Enrollment	Attrition Rate (%)	Number Students Lost To Attrition
60,633	43,958	199,459	214,968	65,380	32.8%	21,422

1996-97 9th Grade Enrollment	1999-00 12th Grade Enrollment	1996-97 9-12th Grade Enrollment	1999-00 9-12th Grade Enrollment	1999-00 Expected 12th Grade Enrollment	Attrition Rate (%)	Number Students Lost To Attrition
62,863	45,971	205,895	220,896	67,443	31.8%	21,472

Source: Annual Report of the Arizona Superintendent of Public Instruction 1994-95; Annual Report of the Arizona Superintendent of Public Instruction 1995-96; Annual Report of the Arizona Superintendent of Public Instruction 1996-97; Annual Report of the Arizona Superintendent of Public Instruction 1997-98; Annual Report of the Arizona Superintendent of Public Instruction 1998-99; Annual Report of the Arizona Superintendent of Public Instruction 1999-00.

For each of the years analyzed, the number of students lost to attrition in Arizona totaled: 21,223 pupils lost from the class of 1998; an additional 21,422 lost from the class of 1999; and an estimated 21,472 students lost from the class of 2000. The cumulative number of pupils lost from Arizona high schools between October 1997 and October 1999 totaled 64,117 pupils, enough individuals to fill 16 high schools of 4,000 or more or to populate a small city in Arizona.

Attrition Rates by Gender

Enrollment data required to conduct the attrition analysis by gender were not available from the Arizona Department of Education, precluding the calculation of attrition rates by these student characteristics.

Attrition Rates by Race and Ethnicity

IDRA found a notable disparity in the estimated attrition rates among Arizona's major racial and ethnic student populations, paralleling the findings of the Arizona Department of Education's annual dropout studies. The largest levels of attrition were found among Arizona's Hispanic and Native American student populations.

According to IDRA's attrition calculations, approximately four out of every 10 Hispanic pupils enrolled in the ninth grade in Arizona high schools are no longer present by the 12th grade. Hispanic high school attrition rates were estimated to be 43.7 percent for the class of 1998, 44.0 percent for the class of 1999, and 42.7 percent class of 2000.

Native American pupils were lost to attrition at levels that were close to that of Hispanic students. Attrition rates for Arizona's Native American high school students were 45.3 percent for the class of 1998, 45.7 percent class of 1999, and 48.3 percent for the class of 2000.

Attrition rates for Black high school pupils in Arizona, though somewhat lower, were also determined to be excessive. According to IDRA's calculations, attrition rates for Black students were 34.9 percent for the class of 1998, 33.6 percent class of 1999, and 32.6 percent for the class of 2000. Approximately three out of every 10 Black pupils enrolled in the ninth grade were lost from school enrollment.

The IDRA attrition analysis for White pupils in Arizona high schools found that the attrition rate for the group was lower than the rates found for the state's major minority student populations. Attrition rates for White pupils were 26.0 percent for the class of 1998, 25.6 percent for the class of 1999, and 24.2 percent for the class of in 2000.

Asian pupils reflected the lowest attrition rate: 9.6 percent for the class of 1998, 13.3 percent for the class of 1999, and 14.1 percent for the class of 2000. An important observation for the Asian sub-group is that, in contrast to all other sub-groups showing small declines in attrition rates from 1998 to 2000, the Asian attrition rate increased for the group over the same time period. See Exhibits 13, 14 and 15.

Though a smaller proportion of the sub-group analyzed, it is important to note that those percentages for White pupils represent a loss of about 10,000 pupils from that group for each of the years analyzed, or approximately 27,000 White pupils. Too often there is a misperception that dropouts are primarily a "minority community problem." According to IDRA's attrition analyses and other Arizona dropout studies, White students account for almost one half (42.2 percent) of all students who leave school prior to graduation.

Dropout prevention strategies that focus exclusively on minority communities would miss thousands of pupils who would benefit from an expanded state emphasis on dropout prevention and recovery. At the same time it is important to recognize that the group attrition rates for Hispanic, Native American and Black pupils also reflect that all three groups leave school at disproportionate rates, a fact that dictates that minority focused dropout prevention and recovery efforts will also be needed to address the issues at state and local levels.

Other Dropout Indicators and How They Compare to State Reports

In order to better demonstrate the extent of the dropout problem in Arizona, IDRA researchers examined other studies. One source is the National Center for Education Statistics (NCES), which annually produces a report on dropout rates in the United States. Due to a time lag associated with collecting data at the national level, these NCES reports usually report data at least one year prior to the report's release date. For example, in December 1997, NCES released *Dropout Rates in the United States, 1996* (NCES, 1997).

One of the reporting categories involves providing information on the percentage of 18- to 24-year-olds who are "not currently enrolled in high school, and who have received a high school

Exhibit 13: 1994-95 Enrollment and 1997-98 Attrition Rates in Arizona by Racial and Ethnic Group

Racial Ethnic Group	1994-95 9th Grade Enrollment	1997-98 12th Grade Enrollment	1994-95 9-12th Grade Enrollment	1997-98 9-12th Grade Enrollment	1997-98 Expected 12th Grade Enrollment	Attrition Rate	Number Lost
White	33,992	26,863	117,493	125,717	36,317	26.0%	9,454
Hispanic	17,362	11,103	52,004	59,104	19,732	43.7%	8,629
Native American	4,427	2,665	13,128	14,451	4,873	45.3%	2,208
Black	2,383	1,713	7,796	8,604	2,630	34.9%	917
Asian	986	1,058	3,775	4,482	1,171	9.6%	113
Total	**59,150**	**43,402**	**194,196**	**212,358**	**64,723**		**21,321**

Source: Annual Report of the Arizona Superintendent of Public Instruction 1994-95; Annual Report of the Arizona Superintendent of Public Instruction 1995-96; Annual Report of the Arizona Superintendent of Public Instruction 1996-97; Annual Report of the Arizona Superintendent of Public Instruction 1997-98.

Exhibit 14: 1995-96 Enrollment and 1998-99 Attrition Rates in Arizona by Race and Ethnic Group

Racial Ethnic Group	1995-96 9th Grade Enrollment	1998-99 12th Grade Enrollment	1995-96 9-12th Grade Enrollment	1998-99 9-12th Grade Enrollment	1998-99 Expected 12th Grade Enrollment	Attrition Rate	Number Lost
White	34,682	27,327	119,632	126,771	36,752	25.6%	9,425
Hispanic	18,006	11,210	54,099	60,193	20,034	44.0%	8,824
Native American	4,567	2,544	13,959	14,314	4,683	45.7%	2,139
Black	2,397	1,805	7,884	8,939	2,718	33.6%	913
Asian	1,011	1,072	3,885	4,751	1,236	13.3%	164
Total	**60,663**	**43,958**	**199,459**	**214,968**	**65,423**		**21,465**

Source: Annual Report of the Arizona Superintendent of Public Instruction 1995-96; Annual Report of the Arizona Superintendent of Public Instruction 1996-97; Annual Report of the Arizona Superintendent of Public Instruction 1997-98; Annual Report of the Arizona Superintendent of Public Instruction 1998-99; Annual Report of the Arizona Superintendent of Public Instruction 1999-00.

Exhibit 15: 1996-97 Enrollment and 1999-00 Attrition Rates in Arizona by Racial and Ethnic Group

Racial Ethnic Group	1996-97 9th Grade Enrollment	1999-00 12th Grade Enrollment	1996-97 9-12th Grade Enrollment	1999-00 9-12th Grade Enrollment	1999-00 Expected 12th Grade Enrollment	Attrition Rate	Number Lost
White	35,577	28,323	122,743	128,964	37,380	24.2%	9,057
Hispanic	18,969	11,977	56,952	62,573	20,901	42.7%	8,924
Native American	4,700	2,638	13,831	15,006	5,099	48.3%	2,461
Black	2,496	1,912	8,226	9,349	2,837	32.6%	925
Asian	1,121	1,121	4,143	4,824	1,305	14.1%	184
Total	**62,863**	**45,971**	**205,895**	**220,716**	**67,522**		**21,551**

Source: Annual Report of the Arizona Superintendent of Public Instruction 1996-97; Annual Report of the Arizona Superintendent of Public Instruction 1997-98; Annual Report of the Arizona Superintendent of Public Instruction 1998-99; and Annual Report of the Arizona Superintendent of Public Instruction 1999-00.

diploma or its equivalent (GED)." These data are reported for the nation as a whole as well as for individual states. According to the 1996 NCES dropout report, between 1991 and 1993 Arizona reported a school completion rate of 81.1 percent, or its inverse an 18.9 percent dropout rate. For the years 1994 to 1996, the three-year average had improved to 87.8 percent.

The "completion" rates reported for the years involved are noticeably higher than the state's own dropout estimates. This difference however, can be explained by the state's more stringent definition of high school dropouts, where GED recipients are not counted among graduate totals.

Another difference is that the NCES data include all 18- to 24-year-olds living in the state for the period covered by the study and thus includes individuals who may have been enrolled in, graduated from, or dropped out of schools outside of Arizona. Because of this broader pool, the state dropout figures in this case may be more accurate estimates of the extent of the Arizona dropout problem.

Another distinct national study was recently completed by Dr. Jay P. Greene of the Manhattan Institute (Greene, 2001). In his analysis, Greene calculated attrition rates for the graduating class of 1998 assessing the status of students enrolled in eighth grade and expected to be seniors five years later. According to the Greene report, the estimated graduation rate for the state of Arizona was only 60 percent, a statistic that converts to about a 40 percent attrition rate for the eighth grade group analyzed. Greene's study indicates that data are not reported by sub-group because sub-group related information was not available for the study as conducted.

According to a recent dropout study conducted by the U.S. General Accounting Office, Arizona has the lowest completion rate of all states estimated at 73.5 percent (2002). Though both of the preceding studies present very different perspectives of the dropout issue, they do reinforce the finding that Arizona has among the highest dropout rates in the country, with estimates ranging from 20 percent to 40 percent. The various data sets also clearly indicate that White pupils account for a significant proportion of the state's dropouts primarily because they also constitute the majority of the state's high school enrollment.

However, when examining dropout rates *within* the state's racial and ethnic groups, that is assessing the proportion that dropouts constitute within each of the states identifiable sub-groups, it is also evident that Native American, Hispanic and Black dropout rates are considerably higher than White pupils within group dropout rates.

Factors Related to Dropping Out of School

Studies that have attempted to determine the reasons students leave school prior to graduation have often focused on student-related factors that include such characteristics as:

- being over age in grade or former retainee;
- parents' level of education; economic status, sometimes re-framed as need for employment;
- teen pregnancy or teen parent;
- excessive absenteeism;
- bored or not academically challenged;
- levels of parent involvement; and
- academically underachieving.

Too often not considered or reported are school-based characteristics such as:

- expenditures per pupil;
- percentages of certified teachers;
- average years of teaching experience; and
- opportunities for extra-curricula participation.

Researcher Linda Darling-Hammond has stated, "The U.S. educational system is one of the most unequal in the industrialized world, and students routinely receive dramatically different learning opportunities based on their social status: The wealthiest 10 percent of U.S. school districts spend nearly 10 times more than the poorest 10 percent. Yet despite differences in funding, teacher quality, curriculum, and class sizes, the prevailing view is that if students do not achieve, it is their own fault" (1998).

This lack of focus on institutional characteristics and need for systemic change may explain why decades of dropout prevention initiatives have met with relatively limited success. There is no single reason that all students leave school prior to graduation. Though our research has suggested that lack of success in school is a major factor.

Many programs have been developed to help address the dropout problem, few have demonstrated evidence of success. AMEPAC requested that IDRA identify available dropout prevention and recovery programs. A later section of this report presents our findings related to successful programs implemented in Arizona and around the country.

The Economic Implications of Dropouts for Arizona

Schools recognize that the loss of students results in lost funding because state aid is based on the numbers of students enrolled. The extent of the annual school funding losses caused by dropouts is based on the proportion that those dropouts are of the total student enrollment for a given year.

The annual dropout reports compiled by the state of Arizona provide data on the number of reported dropouts and the average state expenditures per student in a given year. With this, the approximate costs to individual schools and school districts can be calculated. The state revenues that are lost by individual counties also can be calculated from county-level enrollment and dropout data.

Based on information compiled by the Arizona Department of Education, the Intercultural Development Research Association (IDRA) determined that, on average, Arizona public schools spent an estimated $5,000 in state and local funding per pupil in the 1999-00 school year (Arizona Department of Education, 2001). Multiplying the per pupil funding figure of about $5,000 by the number of dropouts provides us with an estimate of the total lost revenue to schools produced by dropouts for that year: $107.3 million.

While not an overwhelmingly large number when considered in isolation, the costs for students lost over several years can be added to determine the cumulative cost in lost school funding, from the state, caused by dropouts.

According to IDRA estimates, Arizona schools lost a total of 64,117 students to attrition from the classes of students expected to graduate in the years 1998, 1999, and 2000. Multiplying that total by an average of $5,000 per pupil spent in Arizona schools during that span produces an estimated cost of **$320.58 million** in lost resources that would have been available to schools and local communities had these students been kept enrolled in high school over the years involved.

The Long-term Cost of Dropouts in Arizona

Though impressive when looked at on an individual year or annual basis, the true cost of dropouts over the lifetime of those individuals is actually staggering, costing the state billions of dollars in additional social support services, job training costs, lost taxes, and, most importantly, lost revenues that would have been earned by those individuals over the course of their working lives.

In a 1986 study, IDRA developed a model for estimating the cost of dropouts in individual states. This model assessed social service costs related to job training, adult education, unemployment and job placement. It also considered crime, incarceration, lost wages and related lost tax revenue. The model has been used annually to estimate the costs of dropouts in Texas since 1986, with formulas adjusted to incorporate inflation experienced for each of the years of the study.

To estimate the long-term cost of dropouts to the state of Arizona, IDRA utilized Arizona-specific data whenever it was available. Where state-specific data were not located, the latest available national information was substituted with the understanding that state costs may be higher or lower depending on how Arizona compares to the national average in the category involved. For this analysis only incarceration and lost income and related tax losses were estimated.

Incarceration and Related Judicial Costs

In its original cost benefit model, IDRA recognized that not all students who drop out of school are criminals, but cited research that has established that dropouts are over-represented in the prison population in all states studied. After calculating the proportion of the state dropout group that could be expected to wind up in the state prison system, IDRA estimated the total costs that one class of dropouts would create for these systems.

Using data generated by the Arizona Department of Corrections, IDRA established that the state spent an average of $20,737 per inmate to house, feed, and monitor the state's prison population in fiscal year 2000 (2001). Total reported expenditures for all Arizona prisons in fiscal year 2000 were $510,431,581.

Related research on prison populations estimates that as much as 33 percent of criminal costs are attributable to inadequate education (Levin and Bachman, 1972). Using a conservative estimate of only 12.5 of 21,472 students, multiplied by the $20,737 per Arizona inmate yields an estimate of incarceration annual cost of **$55.7 million per year that can be attributed to under education.**

Multiplying the annual figure by an inflation adjusted average of 10 years yields an incarceration cost of **$638.06 million** that may not have been spent on prisons if those inmates had experienced expanded options associated with completing high school.

Lost Wages and Related Tax Revenues

Though all of the aforementioned are important financial implications that can be ascribed to dropouts, the largest costs to the state and nation **come in the form of lost wages, and the taxes that would be derived from that income.** The differential earning power between high school dropouts and those who graduate has long been known. Unfortunately, less well known is how this difference in earning ability translates to major lost revenues.

According to the U.S. Department of Commerce, the median income for workers who left school before the 11th grade will average $21,391 compared to the median income of high school graduates who will average $28,807, a net difference of $7,416. Multiplying that differential by the 21,472 students lost from the class of 2000 yields a total annual revenue loss of $159.23 million per year over the working lifetimes of these individuals (U.S. Department of Education, 2000).

Assuming that these individuals will work until they are 60 years old, and using an annual 3 percent inflation adjustment (reflecting the average inflation rate for the past 15 years) produces an estimated lost earnings over the working lifetimes of these individuals. Multiplied by the 21,472 pupils, this translates to a total of **$13.61 billion in lost personal income for that one group of students.**

The model estimates that individuals pay about 30 percent of their income in some form of tax, be it income, sales, property taxes, etc. Multiplying the total lost wages by 30 percent yields an estimated lost tax revenue amount of **$47.77 million in lost taxes in one year, and a total of $4.08 billion, in lost tax revenue over the working lifetime of that one group of individuals.**

Total Costs of Dropouts in Arizona

Based on cumulative costs of the IDRA cost benefit model, IDRA estimated that over the course of their lifetimes **each dropout costs Arizona an average of $663,664** in increased costs and lost revenues per individual.

Multiplying that $663,664 per dropout times the total number of students we identified as lost to attrition from the class of 2000, **IDRA estimates that Arizona will lose a total of $14.25 billion over the lifetimes of those individuals in lost revenues and incarceration expenses.**

Adding the 42,645 additional dropouts estimated from IDRA's attrition analyses for the previous two ninth grade classes (21,422 from the class of 1999, and 21,233 from the class of 1998), yields a total cost of **$42.58 billion for the last three groups of students** estimated to have been lost to attrition. See Exhibits 17 and 18.

While these costs are estimates based on current counts and costs, these dropout estimates *do not include the additional students that drop out of Arizona's middle schools, or un-graded high schools* (which were not included in the attrition calculation because of the absence of grade enrollment data required by this approach to estimating dropout counts), resulting in a relatively **conservative overall dropout cost estimate.**

Review of the Arizona Department of Education's annual dropout reports for un-graded high schools clearly reveals that the dropout rates for these alternative settings – many of which attempt to serve students who are considered to be more at risk of dropping out – are actually higher than for the conventional graded high schools.

It is clear from these data that whether one considers or excludes the costs of dropouts from un-graded high schools, **the overall costs of dropouts to the state of Arizona and or to the nation are excessive and unacceptable.**

Exhibit 17: Long-Term Costs of Dropouts to the State of Arizona

	Annual Cost	Cumulative Cost
Incarceration costs	$55.7 million	$638.06 million
Lost wages	$159.24 million	$13.61 billion
Lost tax revenue (30 percent of lost wages)	$47.77 million	$4.08 billion
Total cost for students lost from the class of 2000	$214.94 million	$14.25 billion
Total cost for last three classes of dropouts		**$42.58 billion**

Source: State Funding For Education 1999-2000: Superintendent's Annual Report 1999-2000.

Costs of Keeping Prospective Dropouts Enrolled in School

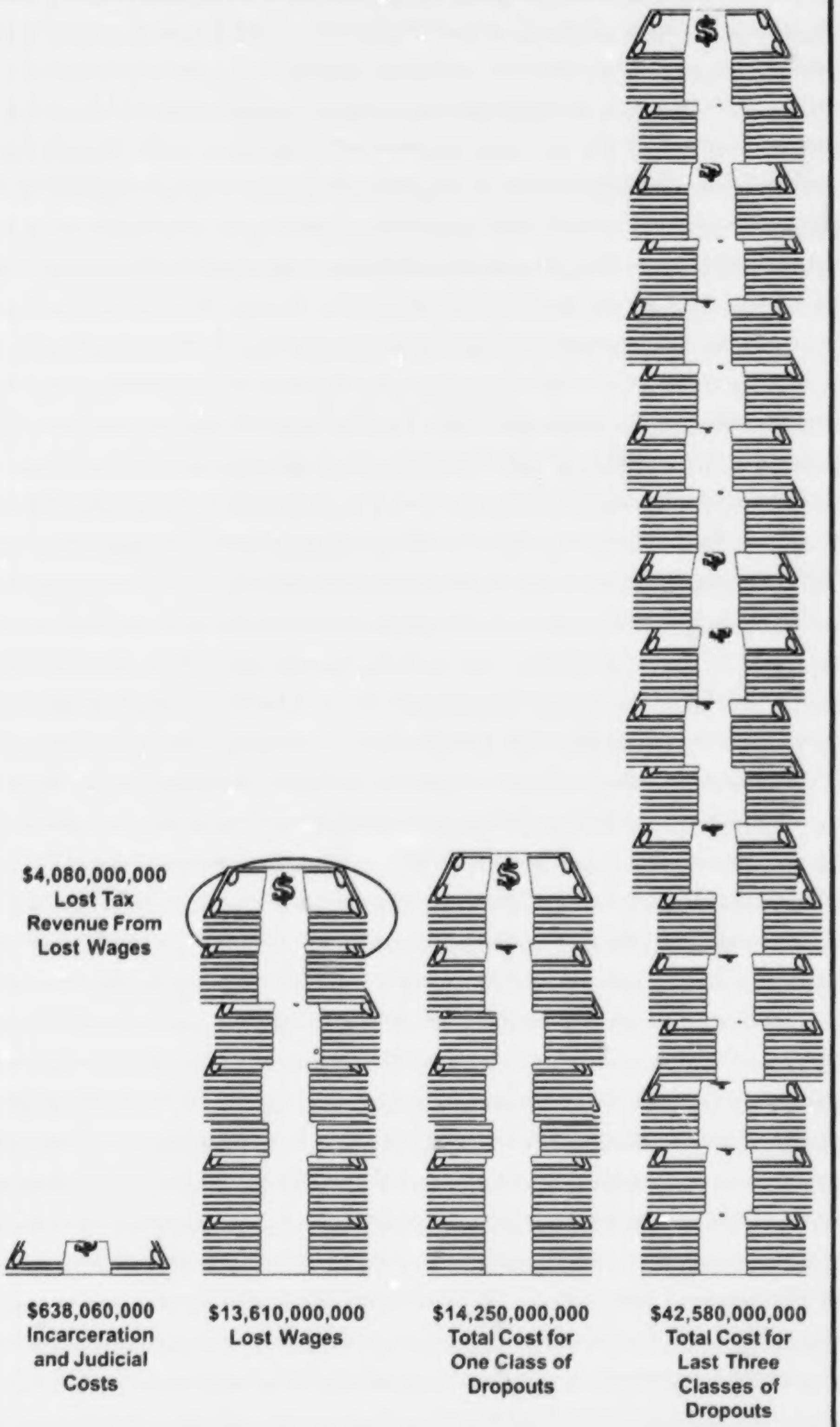
Calculating a cost benefit model involves comparing the costs of keeping pupils enrolled in school to those created by their dropping out. Assuming that Arizona was able to mount effective dropout prevention efforts that prevented this from being a persistent trend, the state would have to spend an additional **$320.58 million** per year ($5,000 x 64,117 pupils lost from enrollment over the last three years) times about two years ($641.17 million) to provide a complete high school education to the groups of students who were lost from grades nine to 12 in the preceding three years.

Failure to ensure that all Arizona pupils remain enrolled at the high school level until graduation however, will cost the state approximately **$42.58 billion** for that same group of pupils over the working lifetime of those same individuals. Calculating the costs of dropouts versus the costs of keeping the students enrolled results in extensive savings to the state.

For every $1 spent on getting all students all the way through to graduation, the state saves $66 in job training, social support and lost earnings, an impressive return on investment.

It should also be noted that the additional $320.58 million required to successfully graduate the current dropout population would be offset by reductions in social services, incarceration, job training and increased personal incomes.

Exhibit 18: Long-Term Costs of Dropouts to the State of Arizona



Dropout Prevention and Recovery Programs

The National Picture

In 1986, the U.S. General Accounting Office (GAO) concluded that "what works" in dropout prevention is unknown. While there may have been some exemplary or model programs across the country, there was little generalizable information that would permit program replication. Sixteen years later, the GAO reports that a variety of state, local and private dropout prevention programs exist, but in many cases their effectiveness is unknown because they have not been rigorously evaluated.

At the national level, the Dropout Prevention Demonstration Program (currently slated for 2002 recision and 2003 elimination in the Bush administration's recommended budget) specifically targets dropouts but does not have any evaluation data because the program is new. Astoundingly, the GAO report notes, "The federal government does not track the amount of federal funding used for dropout prevention services or require that evaluations of programs include assessments of their effect on dropout rates, even for programs for which dropout prevention is an objective" (2002).

The 2002 GAO report recommends that the U.S. Department of Education evaluate the quality of existing research, encourage the rigorous evaluation of dropout prevention programs, and identify effective means for disseminating information on programs deemed effective. This lack of rigorous evaluation, identification and dissemination of information on effective dropout prevention programs and practices leaves schools without the guidance and critical data needed to make informed choices for their students.

There are close to 4,000 listings on the Internet for dropout prevention and recovery programs. Despite this impressive number, it is difficult to find rigorous evaluations or research on the program models. The privately-funded National Dropout Prevention Center (NDPC) housed at Clemson University in South Carolina, provides a data base of dropout prevention model profiles. What is missing from many profiles, however, is any evaluative information.

"Hispanic youth need to be coached, not rescued. They should be able to take credit for what they achieve. They need encouragement and opportunities to take responsibility for their learning and later lives, to set long-range, real-life goals, and to take steps needed to achieve those goals. Adults who advocate for students, who encourage students to dream about their futures, who mentor students on how to achieve those dreams, and who hold students accountable for their actions can provide needed support for students to make their dreams come true" (Secada, et al., 1998).

The Regional Picture

The regional picture mirrors the national picture. The Intercultural Development Research Association's (IDRA) landmark research study in 1986 canvassed Texas for dropout prevention and recovery programs. A survey of all Texas school districts, community colleges, universities, service delivery areas and community-based organizations found the following.

- Ninety percent of the dropout programs in Texas reported having no evaluation data. (Program staff were often confused, embarrassed or even defensive when asked for evaluation data or reports.) Furthermore, program personnel lacked information about the type of data needed to adequately evaluate a dropout prevention and recovery program.
- No individual in any of the institutions surveyed was charged with coordinating program efforts.
- There was no standardization or uniformity in data collection methodology nor did there exist any centralized or accessible information on programs in the state much less across the country.

The same situations remain in Texas and can be found in Arizona almost two decades later – no one individual is accountable for ensuring that students remain in school in a meaningful way, and there is no centralized repository for programs and models that work to keep students engaged and valued in schools.

Another serious problem is the lack of research on school factors that contribute to students dropping out. Most reports misguidedly conclude that student deficiencies are the cause for dropouts (poor grades, lack of "motivation," absenteeism, etc.), or they cite "family background factors" (poverty, less educated parents, single-parent families, family mobility, low levels of English language proficiency, race-ethnicity, etc.).

As a result, the programmatic responses are based on "fixing" the student rather than identifying what school characteristics contribute to a student leaving school – characteristics such as the lack of quality teaching, low expectations for certain students, lack of professional development, a lack of resources, non-credentialed teachers, or a lack of leadership.

A review of the types of programmatic responses clearly shows that the deficit model prevails. Many programs are add-ons to the school with no institutional changes, or they take the student out of the traditional school setting to an alternative one that focuses on the "at-risk" factors.

What Works

"Explicit in good practice models is the recognition that young people, like all people, need to feel a sense of comfort and need to be offered a sense of autonomy in order to profit from program teachings and experiences... Consistent demonstrations of caring and high expectations for young people with choice and 'voice' regarding program operation, and, in response to the racial and ethnic diversity of adolescents, many practitioners incorporate cultural traditions and values into programs" (Williams, 1999).

IDRA's research on strategies for reducing the dropout rate, based on a review of the research of effective dropout prevention strategies and IDRA's experience over the last three decades, shows the following components are vital to successful dropout prevention:

- *All* students must be valued.
- There must be at least one educator in a student's life who is totally committed to the success of that student.
- Families must be valued as partners with the school, all committed to ensuring that equity and excellence is present in a student's life.
- Schools must change and innovate to match the characteristics of their students and embrace the strengths and contributions of students and their families.
- School staff, especially teachers, must be equipped with tools to ensure their students' success, including the use of technology, different learning styles and mentoring programs. Effective professional development can help provide these tools.

These components are also grounded in seven philosophical tenets that IDRA developed over many years of our work in dropout prevention:

- All students can learn.
- The school values all students.
- All students can actively contribute to their own education and to the education of others.
- All students, parents and teachers have the right to participate fully in creating and maintaining excellent schools.
- Excellence in schools contributes to individual and collective economic growth, stability and advancement.
- Commitment to educational excellence is created by including students, parents and teachers in setting goals, making decisions, monitoring progress and evaluating outcomes.
- Students, parents and teachers must be provided extensive, consistent support in ways that allow students to learn, teachers to teach and parents to be involved.

Fulton provides a series of evaluative questions that can help educators decide if a model or program is appropriate and effective for their students (Williams, 1999). They should ask:

- What well-documented evidence or results in student achievement exist;
- Tough questions about suggested reforms and those already in place;
- The intended goals of a strategy, and how one knows if they are achieved;
- How to measure progress throughout the program's implementation and assess its impact;
- How to identify and apply corrective measures; and
- How long to allow a program to operate before deciding whether to continue, expand, or abandon it.

Fulton also recommends using a combination of strategies that include well-researched approaches as well as cutting-edge ones. Whatever strategies are used, they should be part of a *comprehensive, long-term plan* that improves student achievement (Williams, 1999).

In 1997, Olatokunbo S. Fashola and Robert E. Slavin reviewed dropout prevention programs throughout the country and determined that only two, the Coca-Cola Valued Youth Program and Achievement for Latinos through Academic Success, had rigorous evaluations that provided evidence of effectiveness. Several other programs also have some evidence of their effectiveness (as described in Williams, 1999, the NDPC and Internet searches) and are described in this next section. It is important to remember that the programmatic responses listed below are only part of the dropout solution. Schools must engage in good educational practice for all of their students as part of their "regular" schooling and teaching /learning practices.

"Involving parents is an essential component of any reform strategy, but it is not a substitute for a high-quality education program or thoughtful, comprehensive school improvement. Getting parents involved is merely a means to an end – it is not the destination. Moreover, involving parents will not compensate for a curriculum that does not meet the students' needs; nor will parent involvement compensate for poor instruction, any more than public relations campaigns will disguise poor instruction" (Williams, 1999).

Examples of Proven Programs

Achieving a College Education

Achieving a College Education (ACE) is a nationally-recognized program targeting students who traditionally would not consider going to college. The ACE program began at South Mountain Community College in 1987. Since then, 250 high school students have participated in the program's summer institute each year. The program provides an opportunity for high school juniors and seniors from Phoenix Union High School District and Tempe Union High School District to take college courses while attending high school. During these two years, students attend South Mountain Community College during the regular summer sessions and every Saturday during the fall and spring semesters. Program eligibility requires that students be the first in their family to attend college, have evidence of economic hardship, are a member of an under represented group, and have environmental challenges (personal, single-parent, etc.). Preliminary evaluation information is promising. SMCC provides the funding for the program's cost, which averages about $1,250 per participant.

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Advancement Via Individual Determination

Advancement Via Individual Determination (AVID) is a comprehensive middle school through senior high school reform program designed to prepare educationally disadvantaged, underachieving students who have demonstrated potential for success in a rigorous secondary school curriculum for four-year college eligibility. The program also restructures the teaching methodology of an entire school to make the college preparatory curricula accessible to almost all students. AVID has developed a comprehensive professional development program. As of 1998, AVID has been implemented at 750 middle schools and high schools in 13 states, including California, Colorado, Georgia, Illinois, Kentucky, Maryland, Nevada, New Jersey, North Carolina, South Carolina, Tennessee, Texas, and Virginia. AVID also serves the U.S. Department of Defense Dependents Schools (DoDDS) with 55 sites in Europe and the Pacific.

Costs of the AVID program vary from state to state. In California, AVID is a state-funded program with resources provided for 11 regional centers. The initial cost of the program is under $2 per student per day in Year One, declining to under $1 per student in Year Three. Outside California, initial costs per student are typically under $3 per day, with Year Three costs declining to under $1 per day.

AVID has been thoroughly studied through independent research. A well-developed AVID program improves schoolwide standardized test scores, advanced-level course enrollments, and the number of students attending college. In *Constructing School Success* (Mehan, 1997), Dr. Hugh Mehan and colleagues studied eight AVID high schools and found that AVID graduates

"Armstrong approaches the task of teaching children from a rather nontraditional perspective. He asks teachers to view every student as a genius... From the standpoint of education, genius means essentially giving birth to the joy of learning. Furthermore, he suggests that this is the central task of all educators. It is the genius of the student that is the driving force behind all learning, they must further have a thorough understanding of what lies at the core of each students' intrinsic motivation to learn, and that motivation originates in each student's genius. Imagine what could happen in classrooms across America if teachers were to approach all students as if the students were geniuses instead of low-achieving students, average students, high-achieving, gifted students, learning disabled students, or students at risk. Labeling and tracking students undermine the premise that every student is or can be a genius" (Williams, 1999).

outperformed their comparison groups in college enrollment. This research team from the University of California, San Diego, also discovered the 89 percent of the AVID graduates were still in college after two years. Mehan et al. also discovered that 92 percent of all AVID graduates enrolled in college, a rate 75 percent higher than the overall student population. The AVID national office – The AVID Center – has collected data indicating that 85 percent of AVID's graduates complete four-year college requirements and that more than 60 percent of AVID graduates enroll in college.

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Achievement for Latinos through Academic Success

Achievement for Latinos through Academic Success (ALAS) is a dropout prevention program for middle or junior high school Latino students who are most at risk of dropping out of school before graduating. ALAS focuses on youth with learning and emotional and behavioral disabilities using a multifaceted approach of home, school and community. The program is primarily implemented in California schools with high-poverty neighborhoods. Students are provided with social problem-solving training, counseling and recognition for academic excellence. School strategies include improving social and task-related problem-solving skills, intensive attendance monitoring, providing recognition and bonding activities, and providing frequent teacher feedback to parents and students. The program also focuses on integrating school and home needs with community services, and advocating the student and parent when necessary. Community strategies include promoting collaboration among community agencies for youth and family services.

A rigorous evaluation showed a lower dropout rate for ALAS students (2.2 percent) when compared to a control group (16.7 percent). The ALAS program worked especially well for students in the special education and high risk groups.

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Coca-Cola Valued Youth Program

The Coca-Cola Valued Youth Program was first developed by IDRA in 1984. Since then, the Coca-Cola Valued Youth Program has kept more than 11,500 students in school, middle and high school students previously thought to be at risk of dropping out of school, including students in Tempe, Arizona schools. The Valued Youth philosophy, that all students are valuable, none is expendable, helps more than 250 schools in 25 cities keep 98 percent of valued youth in school. The program works by placing junior high school students in positions of academic responsibility as tutors of elementary school students. Tutors are paid a minimum wage stipend for their work, reinforcing the worth of the students' time and efforts. Rigorous Coca-Cola Valued Youth Program evaluations show students consistently feel better about themselves and their schools, and improve their grades, attendance and discipline. The program also improves communication between schools and families, lessens financial burdens and renews family pride.

Coca-Cola Valued Youth are an inspiration to the children they tutor, positive leaders among their peers, motivated learners to their teachers, a source of pride to their parents, and contributors to their communities. The Coca-Cola Valued Youth Program is a U.S. Department of Education exemplary program, validated for its effectiveness by the Program Effectiveness Panel.

One Valued Youth tutor reported he is saving his wages from the program to purchase a headstone for his mother. She had died recently, and there is no other way his family would be able to afford a headstone.

One tutor recently testified before a congressional committee. He said that after being a Coca-Cola Valued Youth tutor, he cares about school and respects his teachers. He also told of seeing one of his first grade tutors on the playground by himself one night and taking him to eat and then home. He said, "I was worried that he was out there by himself and thought it was my responsibility to help him."

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"Interventions must be intensive, comprehensive, coordinated and sustained. Anything less is naive and will show only marginal results. There is no 'cure all' or 'fix the kid' phenomenon... When special intervention is stopped before high school graduation, one can expect high-risk youth who have become successful to once again be at risk for school failure and drop out" (Williams, 1999).

Hispanic Mother-Daughter Program

The Hispanic Mother-Daughter Program was first launched in 1984 at Arizona State University (ASU). The program begins working with girls in the eighth grade to help them stay in school and complete a four-year college degree. In the 2000-01 school year, 750 participants from 41 schools in the East Valley School District and Phoenix Union School District were enrolled.

The program involves mothers directly in their daughters' educational process through a support network of school counselors, community leaders and professional role models. The students' academic and personal progress is monitored from eighth grade through the completion of their bachelor's degree. Tutoring is also provided in the math and science program at Arizona State University and Phoenix Union School District high schools. Eligibility criteria include that the students attend one of the targeted schools in the Phoenix or East Valley districts; be a potential first-generation college-bound student; presently enrolled in the seventh grade and also be at the seventh grade level in reading and mathematics; have at least a 2.75 GPA; be proficient in the English language (daughter only) and make a firm commitment to attend all of the required workshops.

Evaluations show that 85 percent to 95 percent of the girls who remain in the program graduate from high school. The number of Hispanic women enrolled at Arizona State University has doubled over the past decade and the number of first-time Hispanic women who graduate within six years has also increased, from 37.4 percent in 1987 to 47.2 percent in 1991.

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Jobs for America's Graduates

Jobs for America's Graduates first began in 1979 in Delaware with federal, state and private sector support. Over time, it developed as the nation's largest school-to-work transition model for at-risk students. JAG works with states to develop statewide employment for students and reduce the dropout rate. In 2000-01, JAG served 70,000 in- and out-of-school youth in 1,000 high schools and vocational centers in 27 states. The JAG model is comprised of four distinct applications that share these key elements:

1. A "specialist" who is held strictly accountable for 35 to 45 young people who were selected by a school advisory committee.
2. Reduction of barriers that would keep a JAG participant from receiving a high school diploma, securing employment or pursuing a postsecondary education and/or training that leads to a career.
3. Involvement in a highly motivational student organization: The JAG Career Association.
4. Classroom instruction in 37 employment competencies identified by the business community.
5. Involvement of the business community in various facets of the program, including work-based learning experiences leading to mastery certification.
6. Intensive, one-on-one employer marketing and job development by specialists for employment leading to a career.
7. No less than 12 months of follow-up and support on the job after leaving school.
8. Computerized tracking of young people served, services delivered and performance results (graduation rate, positive outcomes rates, aggregate employment rate, full-time jobs rate, full-time placement rate, further education rate, wages, and return to school rate).

Evaluations show that JAG students have a 90 percent overall graduation/GED rate (within 12 months of the normal school-leaving time); an overall 80 percent success rate as defined as participants on the job, in the military, or enrolled in postsecondary education or training; and a 30 percent improvement in employment. JAG costs approximately $1,200 per participant.

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Jobs for Arizona's Graduates

Jobs for Arizona's Graduates (JAG) is a nonprofit organization established in 1990 and affiliated with the Jobs for America's Graduates organization. JAG's goals are to decrease high school dropout rates, increase graduation rates, increase youth employment rates and reduce social services costs associated with unemployment. In 1998-99 JAG served 400 high school students in six Arizona school districts (Camelback, Carl Hayden, Dysart, McClintock, Peoria and Tolleson Union). JAG secures funding through public and private sectors, including the Arizona Department of Education, the Department of Commerce school-to-work initiative, the Valley of the Sun United Way, American Express, Bank of America, Motorola, and the Arizona Public Service.

The JAG class of 1997 had a 95 percent graduation rate, 82 percent overall positive outcome rate (working, military, etc.), a 72 percent job placement rate, 87 percent full-time placement rate, 55 percent full-time job rate, and a 38 percent in further education or training rate. The cost per student for the 21-month program is less than $1,500.

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Mathematics, Engineering, Science Achievement

Mathematics, Engineering, Science Achievement (MESA) is one of the country's oldest and best-known programs. It produces highly trained technological professionals to enter the workforce and assume leading positions in industry. MESA has been profiled in *Science* magazine as one of the top programs in the nation that is successfully producing minority science professionals. The program, established in 1970, serves at-risk students and, to the extent possible by law, emphasizes participation by students from groups with low eligibility rates for four-year colleges. MESA works with more than 21,000 students throughout California from elementary school through university levels. MESA is funded by the state legislature, corporate contributions, and various grants. It is a rigorous enrichment environment that includes MESA classes, academic advising, peer group learning, career exploration, parent involvement, and other services for students from elementary school through the college level.

The MESA Schools Program oversees 19 centers that serve close to 400 elementary, junior and senior high schools. The MESA Success Through Collaboration Program operates at 12 sites. MESA California Community College Program is located on 11 campuses, geared to increase the number of math, engineering, and computer science students in 23 California colleges and universities.

More than 90 percent of MESA high school graduates in 1996-97 went on to a college or university; in the same year, students comprised 90 percent of California's under-represented students who attained bachelor degrees in engineering. And over a five-year period, MESA's community college program has produced nearly 90 percent of the under-represented students who successfully transferred from 11 community colleges to four-year institutions and majored in science, engineering, or math.

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MegaSkills

MegaSkills Workshops have been successfully conducted for more than 100,000 families including African-American, Hispanic, Native American, Pacific American, newly arrived immigrants, and at-risk families. Materials are available in Spanish. Activities for families to do with their children are in easy-to-read format, take 15 to 20 minutes to do, and cost-little or no money. Materials are culturally sensitive and increase positive parent-child interaction in all groups. Home learning activities are provided across the grades from pre-kindergarten to secondary school.

A MegaSkills school uses the MegaSkills Training Programs to increase academic achievement and build school performance. The school identifies specific goals in areas such as reduced discipline incidents, fewer tardies, increased parent involvement, and increased student performance on a number of academic achievement, and increased student performance on a number of academic achievement indicators.

Becoming a MegaSkills school is a two-year process, with increasing levels of excellence. To date, there are MegaSkills schools in California, Kentucky, Ohio, and Texas. Developing children's MegaSkills both in the classroom and the home creates a mutually reinforcing system with the potential for exponentially increased impact beyond what either component can accomplish independently. It ensures that every child experiences MegaSkills.

Becoming a MegaSkills school involves four synergistic components:

- The classroom component – MegaSkills Essentials for the Classroom Program.

- The parent component – the MegaSkills Parent Workshop Program.
- The adult to adult partnership component – the New MegaSkills Bond Program.
- The MegaSkills Environment – a schoolwide system including *achievement goals* based upon the individual school's needs, strengths, and challenges.

Data from the field show that participation in the MegaSkills program results in higher student interest in school, higher attendance, higher academic achievement, increased parent involvement, and a significant extension of learning time beyond the school day.

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Project GRAD

Project GRAD (Graduation Really Achieves Dreams) is a comprehensive dropout prevention/college attendance program developed and evaluated at Jefferson Davis High School in Houston. It was first begun in 1989 by James Ketelsen, a former CEO of Tenneco in collaboration with the University of Houston. A consortia of funders, including Tenneco, promised any student who graduated within four years from Jefferson Davis with a minimum GPA of 2.5, a four-year, $1,000 per year college scholarship. Students participate in two five-week summer academic institutes at the University of Houston. They are also provided with opportunities to participate in paid internships with local businesses in an effort to improve schoolwide discipline, parent involvement and the quality of instruction. Evaluation data over a four-year period (1989 to 1993) showed that the percentage of students graduating in four years increased from 50 percent to 78 percent. College enrollment also increased from 10 percent of all graduates to 60 percent. Students also improved their Texas Assessment of Academic Skills, increasing the passing rate from 37 percent to 86 percent; the number of students in honor courses also doubled.

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SCORE

SCORE is a comprehensive co-curricular support program that brings together administrators, counselors, teachers, parents, and students to increase student academic performance and college and career eligibility, especially for high-risk students. SCORE places students in a rich common core curriculum that leads to university eligibility by the time they graduate from high school. SCORE supports these students in their academic endeavors by equipping them with powerful study skills, assisting them in getting in touch with their personal values and goals, and networking them with appropriate support personnel. SCORE increases academic curricular offerings and decreases remedial course offering on a school campus. SCORE enlists an entire school community in the pursuit of powerful learning. SCORE schools regularly receive commendations on their accreditation reports. SCORE is a U.S. Department of Education exemplary program, validated for its effectiveness by the Program Effectiveness Panel.

SCORE trainers work with school teams to design a custom program for accelerating the achievement of high-risk youth; train staff; and provide follow-through support with technical assistance and a complete set of materials, workbooks, and videotapes.

Title I helps schools participating in SCORE maintain a – average in college preparatory courses. SCORE migrant students enroll in four-year colleges at a rate of 60 percent. Nationwide, the migrant four-year college-going rate is 5 percent. Students involved in SCORE test out of programs for limited-English-proficient students at a rate of 95 percent in four years.

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Upward Bound

Upward Bound is the oldest and largest of the TRIO programs which is administered by the U.S. Department of Education. Upward Bound targets 13- to 19-year-old students whose family income is under 150 percent of the poverty level and/or students who are potential first generation college students. Program eligibility includes completion of the eighth grade, meeting the socio-economic criteria, and a desire or plan to attend college. Recommendations to the program are usually provided by the school's guidance counselors.

The program provides extra instruction after school and on weekends with an emphasis in mathematics, science, foreign languages, English, and composition. Students are also provided instruction in study skills, academic or personal counseling, tutorial services, information on financial assistance and career planning. Students also participate in an intensive six-week academic program at a college campus.

Evaluations of the program show positive results with Upward Bound students staying in school at a higher rate than their comparison group. Upward Bound students were also more likely to attend college, especially if they participated in the program for more than one year.

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Policy Implications and Cost Considerations

It is evident from the data provided in this report that citizens of Arizona are significantly impacted by students who drop out of school without completing high school graduation requirements. Schools are impacted by the loss of students, entire communities and the state itself are impacted by the effects of lost income, lost tax revenue and costs for services that are disproportionately needed by individuals who have had limited education.

All sectors can be considered important stakeholders that can play a role in resolving this very important challenge. No one segment – schools, businesses, parents or communities – can do all that needs to be done alone. But by working together everyone can contribute to improving the dropout situation.

The remainder of this report discusses the major policy implications derived from the study of Arizona dropout-related efforts, summarizing implications for individual schools, the communities that they serve (including businesses, civic groups, religious organizations, and the state of Arizona and agencies responsible for its school age populations) and parents and others responsible for safeguarding the well-being of the state's youngest and most vulnerable citizens.

Policy Implications for Schools

Implication 1: Although the state requires schools to submit dropout and graduation rate data, not all schools comply and submit what is required. For state reports to accurately reflect the full extent of the problem at the local, county or state levels, **all schools must submit required dropout and graduation related data in a timely manner.** Suggested oversight could be by the Arizona Department of Education (primary oversight) and local school districts (secondary oversight).

Cost considerations: Though schools may require additional time or resources to compile and submit the required information, because many student tracking mechanisms are already in place or in the later stages of development (such as the state's new SAIS system) minimal additional expenditures would be required.

Implication 2: Though information is submitted to the state, there are limited opportunities for communities to access and react to local school dropout and graduation information. **To expand community awareness, local schools should be required to report dropout and graduation rates via local print media and/or community forums.** Suggested oversight could be by local school districts (primary oversight) and local media (secondary oversight).

Cost considerations: Since schools are already compiling dropout and graduation data required for state reports, only those costs for facilitating media access and/or for convening a town hall type meeting would be required. Depending on the size of the community, these public forums might cost $100 to $500 per community.

Implication 3: There are currently a limited number of local initiatives that are focused on addressing the Arizona dropout issue. Of those in place, too many do not have adequate evaluation information that assesses to what extent they are working to keep students meaningfully engaged in schools. **Local schools should inventory and more stringently evaluate existing dropout prevention and recovery efforts, eliminating those determined to be least effective and implementing new efforts that have data documenting their effectiveness.** Suggested oversight could be by local school districts.

Cost considerations: Many schools already expend extensive amounts of local and state revenues for dropout prevention and recovery efforts. In addition to some additional state funding that may be needed to adopt new programs, schools may need to reallocate existing revenues from less effective to more effective programs. More must also be spent on effectively evaluating existing and new programs, a reform that may require an expenditure of 10 percent of existing or new revenues allocated for local dropout and prevention efforts.

Implication 4: Not all students who drop out do so from high school. In a related attrition study that considered middle school students, another researcher estimated that only 60 percent of Arizona students from the eighth grade class of 1993 were still enrolled in high school five years later. Given these findings, **dropout prevention and recovery efforts should not be limited to high schools but should include support for middle school programs.** Suggested oversight could be by local school districts and the Arizona Department of Education.

Cost considerations: Very little data could be located on middle school dropout prevention programs being implemented in Arizona, indicating that there are either few programs or limited access to information about what programs exist. Until an inventory is completed it is currently not possible to estimate new costs that might be involved. According to program cost information reported earlier per student costs vary from several hundred to a thousand dollars.

Implications for Communities

Implication 1: As noted earlier, communities and the state as a whole are very directly impacted by the number of students who do not complete the education system. Our review of state policies indicates that communities are seen as prospective participants in addressing local and state dropout issues. A broad array of groups should be convened to focus on assessing the extent of the problem and implementing solutions in partnership with schools. **A state advisory group consisting of state and local community leaders should be formed to draft and disseminate strategies for engaging different community groups in local dropout prevention and recovery efforts.**

Cost considerations: Costs would be minimal to convene such an advisory group.

Implications for the State

Implication 1: Although the state of Arizona requires schools to submit dropout related data, it appears that there are inadequate resources available to monitor the accuracy of reported dropout and graduation data, resulting in few if any sanctions against schools that fail to submit requested dropout-related data. **The state should expand existing monitoring, data auditing, and enforcement efforts to ensure full compliance with state dropout and graduation reporting requirements.** Suggested oversight could be by the state legislature (primary oversight) and the Arizona Department of Education (secondary oversight).

Cost considerations: The Arizona Department of Education may need additional personnel and additional funding to support expanded follow-up and monitoring or data auditing efforts. Costs will vary depending on the extent of noncompliance with reporting requirements and the need for auditing that will be determined. At a minimum, it may require two additional professional full-time staff and perhaps travel and related expenses for targeted onsite reviews or an estimated $300,000.

Implication 2: The state of Arizona currently requires schools to submit enrollment and student status data to calculate graduation and dropout rates on a yearly basis, but it does not consider dropout rates final until five years after initial submission of a specific year's data. **Time for finalizing counts should be limited to no more than one year to help inform dropout reduction and recovery efforts.** Suggested oversight could be by the Arizona Department of Education.

Cost considerations: Given that schools are already submitting annual reports, no additional costs are associated with this policy revision.

Implication 3: Given the magnitude of the dropout problem, the state of Arizona should launch a major statewide effort to address the dropout issue at the state and local community levels. There is no current major statewide initiative that is focused on addressing Arizona dropout issues. **The state should undertake a new major statewide effort that would include development of new graduation rate goals and a statewide plan for increasing local graduation rates and reducing related dropout numbers.** Suggested oversight could be by the Arizona Governor's office and the state legislature.

Cost considerations: Costs would be dependent on the approach used to initiate new state-level efforts. If existing state personnel costs are employed, minimal new expenses may be incurred. If a state group were created to help inform and monitor the plans, development and implementation, related meeting and travel costs may be involved, requiring an investment of between $50,000 to $100,000 depending on the size of the group and the number of times it was convened.

Implication 4: **There is currently no established graduation rate goal for the state as a whole or for individual school districts. State law prescribes that schools will not exceed an annual dropout rate of 6 percent. Though the state accountability system includes provisions for considering local school and district dropout rates, the 6 percent annual dropout rate converts to only a 76 percent graduation rate over four years – a benchmark that is so low that few, if any, districts fail to meet the state standard.** The state should establish a state graduation goal and develop a comprehensive plan to achieve its stated objectives.

Cost considerations: No significant direct costs are associated with recommended revisions to the state goal-setting efforts. Changes proposed could be considered in ongoing meetings of state-level bodies currently empowered to create such standards.

Implication 5: State dropout prevention and recovery efforts should incorporate community-level oversight teams that are comprised of school, community, private sector, parent representatives, and high school students to help with the design, evaluation and monitoring of community-level dropout and graduation related efforts.

Cost considerations: Such efforts should be volunteer-based and thus require minimal outlays. School personnel involved in assisting with convening and data collection may require a part-time staff member (5 percent to 10 percent time) to support the operations of that activity.

Implication 6: **Most districts currently have no one who has primary responsibility for monitoring and supporting dropout prevention efforts.** The state should fund a district coordinator who will be responsible for the effective implementation of dropout prevention and recovery programs.

Cost considerations: No additional costs would be incurred if some existing staff person were tasked with the role of dropout prevention coordinator. If new positions are created, one full-time staff member would be required for each middle school and high school at a cost of approximately $30,000 to $60,000 per staff member, dependent on level of the position and related experience.

Implication 7: **Accurate data reporting plays a critical role in developing new dropout identification, prevention and recovery efforts. The state of Arizona is in the initial stages of upgrading its student accounting systems. The time lines for completing the SAIS system however extend to 2007.** The state of Arizona should provide additional resources to expedite the completion of the state's new SAIS system to facilitate state-level research on student persistence and graduation.

Cost considerations: Costs for expediting the completion of the SAIS system could not be computed due to lack of data.

Implication 8: Though funding for dropouts is included as a category in state funding to local schools, its inclusion in a block grant reduces the probability that sufficient resources will be targeted on this specific issue at the local level. **The state of Arizona should adapt a new funding formula category to provide targeted funding for dropout prevention and recovery programs for schools based on the number of pupils who are identified as at risk of dropping out of school.** Because the extent of the problem varies across student groups and communities, efforts should be targeted to address groups and areas with the greatest need. One means for targeting additional resources is allocation of additional state funding based on numbers of students identified as being at risk of dropping out of school.

Cost considerations: Costs will depend on the number of at-risk factors included in the state funding mechanisms. However if the proportions are similar to other states, as many as 30 percent of all Arizona students could be included in the funding formula. Using a weight of 10 percent of average per pupil expenditures the per student figure would be an estimated $500. Multiplying that amount by an estimated 100,000 pupils that might be identified as at-risk produces an estimated cost of $50,000,000. Though acknowledged as no small amount, these costs must be contrasted to the long-term costs of failing to graduate a substantial portion of Arizona youth. State costs could be reduced if allocations are shared with local schools based on local property wealth per pupil.

An interim alternative to a per pupil funding approach could involve providing state funding for a variety of dropout prevention and recovery pilot programs that could include urban, rural and other sites. Model options would need to be varied to include proven strategies such as cross-age tutoring, school-community partnerships, and intensive academic and support services.

Cost considerations: Costs per program model may vary from $25,000 to $50,000 per site with total costs dependent on number of pilot sites adopted.

Implication 9: The state accountability system currently considers annual dropout rate data but does not incorporate a measure of schools' holding power. **Graduation rate data should be included in state accountability provisions with appropriate weighting and related sanctions for excessive dropout rates and rewards for accelerated reduction of dropout rates.**

Cost considerations: No significant additional costs are associated with this policy recommendation since the state already has mechanisms in place to collect and report school graduation rates.

Implication 10: Arizona currently, and appropriately, does not include either GED or unverified enrollment counts in its dropout rate calculation, resulting in a more accurate estimate of students who annually drop out from Arizona high schools. **Future dropout calculation procedures should continue these established procedures.**

Cost considerations: Since no changes are being recommended in this area, no additional state costs are involved.

***Implication 11:* The state of Arizona is in the process of revising its graduation rate calculation procedures as it implements the new SAIS system.** Graduation rate studies should continue to exclude, but report separately, numbers of pupils who: (1) are enrolled in or completed GED programs, and (2) have finished all course requirements but failed to pass the AIMS test.

Cost considerations: Because the SAIS system is still in developmental stages, no additional costs are triggered by this policy recommendation.

Implication 12: There is currently no statewide mechanism for identifying effective dropout prevention and recovery programs. Nor is there a centralized repository of information on effective dropout prevention or recovery efforts that could help guide local communities that wish to impact the dropout problem. **The Arizona State Department of Education should be**

funded to develop and regularly update a clearinghouse for state dropout prevention and recovery programs that have evidence of effectiveness. An Internet-based data base could profile program models and include their components, strategies and approaches, target populations, contact information and evaluation results.

Cost considerations: A staff person would be needed to maintain the system over time. Initial costs would be incurred for the web site development and screening of program models for eligibility criteria (rigorous evaluations, valuing philosophies, etc.). Estimated start up costs would be $100,000, and $50,000 per year for updating and maintaining.

Implication 13: Although this report provides a gross estimate of costs of dropouts to the state of Arizona, a more comprehensive cost study might serve to further heighten public awareness of the implications of the large numbers of under-educated citizens for the state's economy. **Arizona should conduct a comprehensive study of state costs resulting from students leaving school prior to graduation,** including analyses of lost wages and related state taxes, incarceration costs, job training and unemployment expenses, and other state costs that may be significantly impacted by lower levels of education.

Cost considerations: A comprehensive cost study may require an investment of $50,000 to $100,000 depending on the depth required and the fees of companies that might provide the service.

Implication 14: State leaders should consider increasing the compulsory age at which students are exempted from required school attendance from the current age of 16 to 18 to discourage pupils from leaving school prior to graduation. **However, such initiatives must be accompanied by relevant changes in schools' dropout prevention and recovery efforts.**

Cost considerations: Compulsory age changes may result in a percentage of additional students remaining in school and may also include costs to enforce compulsory attendance for individuals. A 10 percent increase in enrollment (or 10 percent decrease in annual dropout counts) that can result from the change in policy produces an estimated cost of $10.7 million in additional school costs (based on 10 percent of 21,472 dropouts times $5,000 per pupil) – far smaller than the long-term costs associated with their dropping out of school.

Appendices

Appendix I: Description of IDRA's Model: The Economic Cost of Dropping Out of School

In a contract with a major state education agency, IDRA was asked to develop a model for estimating the costs created by students who left school prior to graduating, examining not only additional expenses incurred by a state for providing services to such individuals, but also including revenues that would be lost to the state as a result of under-education among a segment of the state population. After conducting extensive reviews of the research literature on these issues, IDRA created a model for estimating the cost of dropouts that included major cost areas plus estimates of both lost income and related tax revenues that would have been available to the state had those individuals remained in school up to high school graduation. A description of each of IDRA's cost model's major categories follows.

Lost Income

Review of research on the cost of under-education in the United States reveals that the single most significant impact of dropping out of school is the extent to which it limits the earning power of these individuals, not only in the years after they leave school, but even more significantly over the course of their working lives.

Levin and Bachman (1972) conducted early studies where they examined the impact of dropping out of school on wages and tax revenues using U.S. census data that examine annual earnings of high school graduates compared to those who had not completed high school. Those early studies were updated by examining U.S. census data on lifetime earnings of high school graduates and those who reported they had dropped out, including gender factors. Gender has been found to impact individual earnings. Males historically are found to earn significantly more than females for a number of reasons, including under-representation in certain trade jobs and management level positions. Using lifetime earning data distinguished by gender, the study compiled data on the differential earning power of high school graduates versus non-graduates. Regional differences in income and related factors were also integrated into the state-level cost estimates. State-level costs were determined by multiplying the estimated number of dropouts by the individual earning differentials between dropouts and non-dropouts.

Levin and Bachman also developed procedures for estimating the amount of tax revenue that would be lost from state coffers when pupils left school prior to graduation. According to that research, it was estimated that on average, all individuals pay approximately 30 percent of their income in taxes. These taxes include federal and state income taxes, sales taxes, and other taxes paid either directly or because they are incorporated into payments by consumers including such taxes as property taxes, corporate and franchise taxes, and other taxes such as gasoline and alcohol and tobacco taxes. Using the 30 percent figure and estimates of lifetime earning for high school graduates and non-graduates. IDRA was able to calculate individual lost tax revenues attributable to dropping out. Multiplying the number of dropouts by the lost tax revenue per pupil yields an estimated tax revenue loss attributable to the dropout issue.

Social Welfare Services

Another factor considered in estimating dropout costs focuses on expenses created by the need to provide additional social services for individuals who do not complete high school. The research on the issue has long established that high school dropouts tend to use social welfare services to a higher extent than do non-dropouts. The major social services identified included: (1) welfare or Aid to Families with Dependent Children (AFDC), (2) unemployment compensation, and (3) job training including adult education and JTPA costs.

In the original state cost study, IDRA developed a method for estimating the proportion of the dropout population that would be expected to use these services based on past utilization rates and contrasting those estimates to the non-dropout population that also used such services. After applying the utilization models to the dropout and non-dropout populations to arrive at the rate differentials, IDRA then compiled data on the individual costs associated with AFDC and food stamps participation, unemployment costs, and job related training. Using the additional costs that were estimated to result from over-utilization of these services by students who did not complete high school yielded an estimated add-on cost from dropouts in each of the major social service cost areas.

Since conducting that initial cost study in 1986, states and federal governments have adopted major changes in AFDC programs, imposing time limits for participation in AFDC and requiring engagement in job training efforts. These new requirements no doubt will lower AFDC costs, however the extent to which those savings are offset by increased job training or related unemployment compensation costs are not as yet known since the impact of these reforms is just now being realized. Additional research to update this aspect of the cost model will be needed to improve the estimation of future costs in this specific cost element of the dropout cost model.

Unemployment Costs

Research on the relationship of employment and level of education (Levin and Bachman, 1972) established that dropouts tended to be unemployed at higher rates than those individuals that completed high school. This portion of the cost model calculated the estimated differences in utilization of state unemployment benefits programs among dropouts and non-dropouts. This difference in utilization rates was in turn used to arrive at estimates of the add-on costs for unemployment compensation by multiplying the differential by the number of dropouts identified in the state study.

Crime and Prison Related Costs

Studies on prisons and the judicial system have established that although under-education does not directly lead to higher crime rates, those individuals in these systems have a lower level of education than the general population. The IDRA cost model compiled data on the costs associated with incarceration, police protection and stolen property crimes to arrive at an estimate of these costs. For the next portion of the cost model, IDRA then developed procedures for estimating the number of high school dropouts that would be part of those systems and contrasted those estimates with the non-dropout population. After calculating the differences, IDRA multiplied the figure by the number of dropouts to arrive at the costs in this area specifically attributable to that portion of the dropout population.

Updating of the Cost Model Elements

In order to ensure the relevance of the cost model to more recent expense rates in each of the areas, IDRA conducted an update of the cost model by adjusting costs in all the major categories by the inflation rate experienced for each of the years since the cost model was initially developed.

Appendix II: A Summary of Research Methods Used in the Development of the Arizona Dropout Paper and Some Related Observations

Costs of Dropouts to the State of Arizona

Data Sources

Arizona Department of Corrections Fiscal Report for 2001.

Arizona Department of Education Report – Arizona Adult Education Annual Report 2001.

National Median Income by Level of Education from the National Center for Education Statistics.

Methodologies Used

Dropout counts used to calculate total costs were based on the number of students determined to have been lost to attrition based on IDRA's attrition formula calculations. Enrollment numbers used in the attrition calculations were acquired from the Arizona Department of Education's Superintendents' annual reports for the years 1994-95 to 1999-00. A description of attrition calculations procedures is attached.

Costs to schools were calculated using the same attrition numbers cited above. Arizona per pupil expenditures were acquired from the Superintendents' annual report table that summarized expenditures for the 1999-00 fiscal year which summarized expenditures by school types and levels. An overall average was computed by dividing total expenditures across all levels, by the total number of pupils enrolled. The $5,000 per pupil expenditure was rounded from the $5,007 amount that resulted from the above calculations.

All of the cost estimates that projected into future years (differences in earnings and taxes paid by dropouts and non-graduates. Prison costs were adjusted for inflation using the average inflation rate for the past 15 years.

Prison costs per inmate were multiplied by the percentages of inmates that research estimates would be incarcerated based on impact of under-education.

As noted in the paper, taxes were computed as a percentage of lost revenues based on research on the proportion of monies earned that are required to meet the average tax burden. The research in this area notes that taxes include not only federal and state income burdens but also property and sales taxes, service related taxes, tobacco and liquor, and a myriad of other consumer based tax sources. Though a real revenue loss to the states – lost taxes are tied to revenues earned by individual taxpayers and thus are a subset of revenues, rather than an additional cost to states.

Numbers of Dropouts and Numbers of Pupils Lost to Attrition

Data Sources

Dropout data reported varied and included annual dropout rates calculated by the Arizona Department of Education. Graduation related data were compiled and also calculated by the Arizona Department of Education. Attrition data, which was based on October enrollment data, was compiled by the Arizona Department of Education, but using attrition formulas developed by IDRA.

Methodologies Used

Annual dropout numbers and rates reported in the paper reflect actual information compiled and reported by the Arizona Department of Education.

Arizona graduation rate data was acquired from reviews of the Arizona Department of Education Graduation Rate Report by IDRA for 1994-95 that also summarized 1993-94 graduation data.

Attrition data was calculated by IDRA using October 1 enrollment data provided by the Department of Education from the Superintendents' annual reports that summarized enrollment data for each academic year. The October 1 enrollment data for the 1994-95, 1995-96, 1996-97, 1997-98, 1998-99, and 1999-00 school years was used in attrition calculations. In addition to state level data, enrollment information was available by racial and ethnic group. Enrollment data for gender and summaries by counties were not available in those reports. A description of IDRA's attrition methodology used to calculate attrition rates for freshman class of 1996, 1997, and 1998 is attached as Appendix III.

Dropout Prevention Programs

Dropout prevention programs were identified using extensive Internet search procedures, reviews of national studies of dropout prevention programs, and a comprehensive analysis of dropout prevention programs identified in the National Clearinghouse on Dropout Prevention Programs at Clemson University.

Also reviewed and considered was information provided on Arizona-based dropout prevention programs by Arizona-based individuals include Arizona educators familiar with less accessible, less known local programs who participated in meetings convened during the IDRA research team site visits.

Selected programs were directly contacted to acquire cost related data.

Appendix III: Attrition Rates As Indicators of School Dropouts

by José A. Cárdenas, Ed.D., and María del Refugio Robledo, Ph.D.

Reprinted from the *IDRA Newsletter* (San Antonio, Texas; Intercultural Development Research Association, February 1987)

The Texas Dropout Study

Under a contractual relationship with the Texas Department of Community Affairs and the Texas Education Agency, Intercultural Development Research Association (IDRA) has recently conducted an extensive statewide study of school dropouts. The study included estimates of the magnitude of the problem, the long range cost of school dropouts to the State of Texas, and an analysis of school programs related to dropout prevention and rehabilitation.

The study of the magnitude of the problem included several approaches, – reviews of prior studies, an analysis of dropout information submitted by Texas school districts to the state education agency in the Annual Performance Report, analysis of Bureau of the Census data, and student surveys in a sampling of Texas school districts.

Purposes of the Magnitude Study

The study of the number of dropouts in the State of Texas served three purposes:

1. To determine the magnitude of the problem, and indirectly to weigh the extent of dropout prevention efforts against the magnitude,
2. To develop baseline data and a methodology for evaluating the success of subsequent dropout prevention efforts, and
3. To provide base information for further inquiry.

Practical Considerations

In the selection of a methodology for estimating the magnitude of the dropout problem in Texas it was necessary to take into account several factors which presented severe limitations for this study.

The selection of methodology was in part based on the general unavailability of reliable and valid data at the local level. Only 39 percent of Texas districts reported having a system for identifying dropouts. Among these districts, definitions of school dropouts were similar but not uniform. Sixty-two percent of the districts reported having no formula for calculating the dropout rate. The lack of uniformity in definition and procedures precluded aggregating data from individual school systems.

It was necessary to generate an estimate in a very short period of time. Though the Texas Dropout Survey was originally conceived as a one-year study, various constraints resulted in less than half of the original time line being available for the study. Funding limitations further constrained the amount of effort which could be expended on the study, and there a minimum of data demands to the school districts and other agencies participating in the study.

Attrition Rates

The Texas Dropout Study analyzed enrollment figures made available by the Texas Education Agency for a cohort of students who were in the ninth grade in 1982-83 and followed them for three years up to the 12th grade in 1985-86 The attrition rate was calculated by dividing the number of missing students by the size of the group in the ninth grade to produce an attrition percentage rate.

Changes in high school enrollments during the three-year period of the longitudinal study were taken into consideration by adjusting the attrition rate. The number of ninth graders in 1982-83 was multiplied by the high school enrollment in 1985-86 and divided by the high school enrollment in 1982-83. This adjustment produced an "expected" 12th-grade enrollment which was subsequently used to produce the attrition rate adjusted for the change in the number of high school students caused by increasing or declining enrollments.

The methodology described above produced estimates of school dropouts at the state, regional, county, and district levels. Various assumptions were made in determining the attrition rates for the various entities, though a testing of the assumptions substantiated their validity.

An assumption was made that data made available for the Texas Dropout Study was valid and correct. Several discrepancies in the data were found and corrected by contact with the respective school districts. Enrollment data as well as attrition rates produced were mailed to each of the 1,000 school districts in Texas with an attached card requesting that discrepancies be reported. Though some 14 school districts responded with requests for additional information on the methodology used, no cases of erroneous data were identified.

An adjustment for retentions did not have to be made. Though retention rates at some grade levels (end of ninth grade) were higher than at any other grade levels, this lack of uniformity was found consistent from one year to the next for the three years studied. If a high percent of the students were retained at the end of a grade level, the loss was compensated for by an equally high percentage of students retained the previous year. In a test sample of school districts, not one single district showed a significant change in the rate of retentions from year to year at any of the grade levels studies.

An assumption was made that the number of students transferring in and out of the district were dispersed evenly throughout the four grade levels. Tests in a sampling of school districts with constant, increasing, and decreasing enrollments failed to identify discrepancies in the distribution of entering or departing students over the four grade levels.

The entire methodology was tested against actual student data in small sampling of school districts, including the second largest school district in Texas. As in the test for the impact of retentions and changes in enrollments, no discrepancies were identified.

A separate study of the magnitude of school dropouts was conducted using data furnished by the Bureau of the Census. The incidence of youth aged 16 to 24 years not enrolled in the school with less than high school completion validated IDRA attrition data at the state, regional, and metropolitan levels. No comparable data was available for analysis in metropolitan areas served by several school districts.

The State attrition rate (33%) was comparable to the dropout estimate produced by the National Center for Educational Statistics' analysis of the High School and Beyond data set (34%).

Examples

The following sample cases from school districts in Texas demonstrate the methodology used in the study.

A. In one school district there were 1,157 students in the ninth grade in 1982-83. Three years later there were 546 students in the 12th grade (1985-86). During these three years the high school enrollment held constant, with 2,892 in 1985-86. Since there is virtually no fluctuation in the high school population, the number of students no longer in the cohort (1,157 minus 546 = 611) was divided by the number of students in the original group (1,157) to produce an attrition rate of 53 percent.

B. In another school district there were 3,168 students in the ninth grade class in 1982-83. During the next three years the high school enrollment for the district increased from 10,736 to 13,170, a 22.67 percent increase in enrollments. In order to determine how many students should be in the ninth grade group by the time they were seniors in 1985-86, it is necessary to adjust the ninth grade number by the 22.67 percent increase in enrollment. Making this adjustment produces an expected enrollment of 3,886 in the 12th grade in 1985-86, assuming that the increase in high school enrollment was evenly distributed throughout the four grade levels.

Since only 2,594 students were enrolled in the 12th grade in 1985-86, there are 1,292 students missing from the expected enrollment of 3,886. This produces an attrition rate of 33 percent.

If the increase in high school enrollments was not distributed evenly throughout the four grade levels, and none of the 2,434 additional students were enrolled in the class which was followed from 1982-83 to 1985-86, the number of students missing from the original group in 18 percent, though it is ludicrous to assume that none of the additional students were enrolled in the group being studied.

Given two assumptions: 1) that the additional students were evenly distributed among the four grade levels, and 2) that the additional students were enrolled in all grade levels expect the one under study, it is the latter assumption that appears much more improbable, statistically invalid, and pragmatically unreasonable. On this basis it stands to reason that the 33 percent attrition rate figure is a much more valid estimate than the 18 percent.

C. In a third school district the enrollment at the ninth grade level in 1982-83 was 1,226. At the 12th grade level three years later the enrollment was 629. The number of missing students (597) divided by the number in the original group indicates that 49 percent of the original group is missing. But during the same three-year period the high school enrollment declined from 3,928 to 3,442. Assuming that a proportionate number of students were lost in each of the four grade levels the original number is adjusted to 1,074. Subtracting 629 from the adjusted estimate of unaccounted students and dividing the result by the adjusted estimate produces an attrition rate of 41 percent.

Caveats

As is the case with any type of statistical analysis, the reader is warned of factors which may not have been taken into consideration in the analysis. The reported attrition rates constitute a good estimate, but should be further interpreted in the light of district information not available to the researchers. The following factors should be considered in estimating the number and rates of students dropping out of school.

A. The attrition rates produced by this study are extremely conservative estimates. Actual dropout rates may be expected to be much larger. The study followed a group of students for a three-year period in grades nine to 12.

Yet, another portion of the study which analyzed census data indicated that 30 percent of all students who drop out of school do so before the ninth grade, i.e., before the beginning grade of the longitudinal study. For some ethnic groups, such as Hispanic, the percentage dropping out of school prior to the ninth grade was 50 percent.

The longitudinal study was terminated at the 12th grade level with no attempt to determine how many additional students may have left the school at this level or subsequent years without graduating.

A third factor producing conservative estimates is the use of net growth/decline figures in adjusting for changes in the high school population. The amount of change in total enrollment due to dropouts was not factored out prior to making the adjustments.

B. School districts in Texas reported differences in the definition of a school dropout and used a variety of methodologies in computing self-reported dropout rates. Rates reported to the Texas Education Agency in the Annual Performance Report and following the methodology recommended by the Agency constitute one-year dropout rates rather than cumulative longitudinal rates as estimated and reported in the Texas Dropout Study.

A dropout rate reported by a school district using the entire enrollment of the district (K-12) represents the average number of dropouts at each grade level. Therefore, a reported figure of 5 percent would indicate that 5 percent of ninth graders, 5 percent of 12th graders, 5 percent of kindergarten and second grade students, etc. dropped out of school during that year. Since there are reasons to believe that few dropouts occur at the early elementary grades, rates computed by such a formula may not reflect the holding power of the school.

Instructions from the Texas Education Agency for the calculation of dropout rates have been modified, with the recommendation that districts use the secondary school enrollment figure rather than the entire district enrollment in computing the dropout rate. Districts following this recommendation will see their dropout rates doubling and even tripling this year.

G. Alfred Hess, Jr., in reporting variations in dropout reporting methodologies (*Metropolitan Education*, Fall, 1986) uses the rule of thumb that annual reports of school dropouts should be multiplied by the number of grade levels in the study in order to convert annual reports to longitudinal figures. Therefore districts reporting dropout figures compiled on the number of students enrolled in grades kindergarten through 12 should multiply the dropout rate by 13 in order to make the rate comparable to a longitudinal rate. Districts using the new TEA recommended procedure of dividing the number of dropouts by the number of students enrolled in grades seven through 12 should multiply the annual dropout rate by six to produce a comparable longitudinal figure.

C. Districts using the attrition rates submitted to them as a follow up of the study should use caution in interpreting the data particularly when the number of students is exceedingly small. Though the original intent of the study was not to compute attrition rates for individual school districts, the availability of the data in calculating a state rate facilitated the calculation of attrition rates at regional, county and local levels.

It can be assumed that attrition figures reported in the Texas Dropout Study are very valid, though conservative, at the state and regional levels, for heavily populated counties, and for large school districts. The data may become questionable in sparsely populated counties and in very small school districts. The abundance of school districts in Texas with high school enrollments of less than 200 students demands caution in local interpretation of the findings.

Similarly, ethnic breakdowns which result in very small number of students in some ethnic groups may affect the validity of attrition estimates for those groups. In a large school district with a small number of Black, Hispanic, Asian or White students, rates for the total district population may be highly valid, but the rates for a very small number of students of an ethnic subgroup may be questionable.

D. Extenuating circumstances may exist in some school districts which should be taken into consideration in the interpretation of local attrition rates. For example, discussions with school superintendents in districts along the Mexican border indicate that there may be large numbers of students from Mexico that enroll in Texas school districts for the sole purpose of learning English. Having accomplished this objective in a year or two, the students return to Mexico and further school attendance is beyond the control of Texas schools.

Another unique circumstance identified during the study was the effect of court ordered school desegregation on enrollment patterns. If the reaching of an age or grade level influence by desegregation results in large, uneven distributions of students leaving or returning to a school district, the validity of attrition rates is questionable.

This finding explains the reason why the attrition study was started at the ninth grade and not at the seventh grade level as originally conceived.

Conclusion

The calculation of attrition rates for the state, regions, counties and school districts proved to be a simple, fast, economical and valid method of determining the magnitude of school dropouts, providing baseline data for the subsequent evaluation of prevention efforts, and providing school districts with basic information for subsequent analysis and validation.

The availability of these data should provide a sound framework for the development of educational policies at the federal, state and local levels aimed at eliminating, or at least greatly reducing, the existing school dropout problem.

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Appendix IV: Sources

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Research on ***Dropping Out of Arizona's Schools: The Scope, the Costs, and Successful Strategies to Address the Crisis*** was conducted by

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